keyboard error or no present

Press **F1** to continue...

Materiali di supporto al Modulo 4 del Percorso Formativo C

Risolvere un malfunzionamento vuol dire capirne le cause ed individuare le procedure per rimuoverlo. L'esperienza personale e la possibilità di contare sull'aiuto di chi ha già affrontato problemi analoghi, sono la principale risorsa su cui puoi contare. Questi materiali sono stati elaborati dal Progetto Marconi del CSA di Bologna come supporto ai docenti che devono operare piccoli interventi di manutenzione affinché non siano scoraggiati di fronte a messaggi come questo: "tastiera assente… premere F1 per continuare" :-(

I materiali e gli approfondimenti presentati sono in gran parte riferiti al sistema operativo Windows, non perché sia il migliore, semplicemente perché è quello che le scuole utilizzano con maggiore frequenza :-(

La cassetta degli attrezzi

L'architettura del computer

La scheda madre e la CPU

Il BIOS
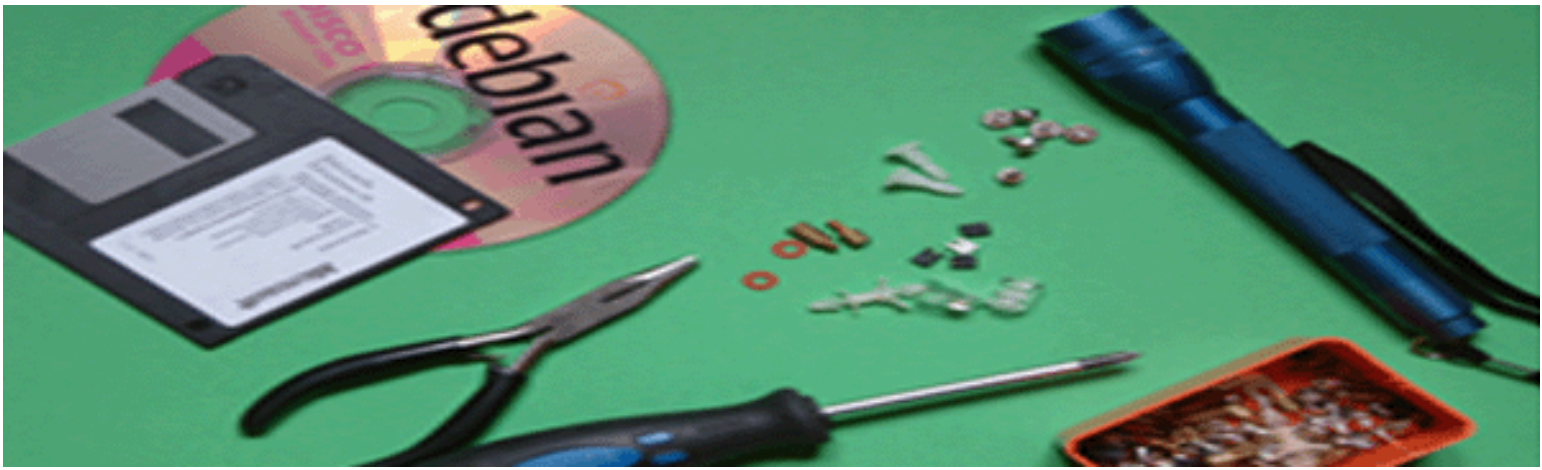
Conflitti fra le periferiche

L'aggiornamento dei driver

I dischi: installazione, partizionamento, clonazione

Dispositivi seriali e paralleli

Il registro di sistema

Il ripristino del sistema operativo

L'ultimo aggiornamento di questi materiali è del 2 novembre 2003.

La cassetta degli attrezzi

Aprendo un'ideale "cassetta degli attrezzi" (in quella che ci portiamo dietro mancherà sempre qualche cosa!) troveremo:
- un po' di "ferramenta";
- un po' di software;
- un po' di hardware recuperato da un vecchio PC;
- qualche informazione di supporto;
- un po' di fortuna :-)

La "ferramenta" necessaria si riduce a poche cose: un cacciavite, un paio di pinze, un assortimento di viti e qualche cavallotto (jumper), una pila e una lente di ingrandimento.
Anche il software non occuperà molto spazio: sicuramente avremo bisogno dei CD per l'installazione di tutti i sistemi operativi che utilizziamo, di un dischetto per l'avvio del PC dal floppy con driver universale per in riconoscimento dei lettori CD, di qualche utility per la diagnostica e la partizione dei dischi, di un antivirus.
Disporre di un po' di hardware (scheda video, di rete, modem, hard disk, lettore CD, connettori, cavi di rete, sdoppiatori di alimentazione, ecc.) è di fondamentale importanza per verificare che il malfunzionamento rilevato non sia dovuto al guasto di un componente.
Infine, avremo bisogno di qualche manuale, della documentazione relativa all'hardware che utilizziamo (innanzi tutto quella della scheda madre), della possibilità di reperire informazioni e risorse in Internet.

Prima esercitazione: riempi la tua cassetta.
Procurati i materiali necessari per riempire la tua cassetta degli attrezzi.

Seconda esercitazione: un altro sistema operativo
Di fronte ad un malfunzionamento di cui non si comprende la causa può essere utile provare ad avviare il PC utilizzando un diverso sistema operativo e verificare il corretto funzionamento dei dispositivi. Da qualche tempo esistono, nell'ambiente Linux, dei CD Live che consentono di avviare una sessione di lavoro dal lettore CD senza scrivere file sul disco fisso. Uno dei migliori prodotti è Knoppix di cui esiste una localizzazione in italiano, KnopILS. Knoppix in pochi minuti fornisce un sistema operativo completo, dotato delle principali applicazioni office, del supporto multimediale e delle applicazioni Internet. Procurati una copia del CD e verifica se Knoppix rileva le periferiche presenti sul tuo computer. (Ricordati che prima devi predisporre il BIOS per l'avvio dal lettore CD).

Terza esercitazione: creare un disco di avvio
A volte è necessario avviare il PC da un floppy configurato in modo consentire l'uso del lettore CD o l'accesso ad una risorsa in rete. Segui queste istruzione per realizzare:
Un disco di avvio con supporto del CDROM;
Un disco di avvio con il supporto per NTFS;
Un disco di avvio per accedere ad una rete NetBEUI;
Un disco di avvio per accedere ad una rete TCP/IP.

Dal sito WinTricks puoi prelevare due eseguibili che consentono di creare dischi di boot configurati per i CDROM IDE e SCSI.

Con il programma DiskImager è possibile creare le immagini dei propri dischi di boot e procedere al successivo restore. Oltre ai file di immagine, si possono realizzare anche degli eseguibili che consentono di riscrivere su floppy il disco immagine.

Quarta esercitazione: bookmark

La rete è ricca di informazioni e costituisce un valido supporto per la risoluzione di molti problemi. Spesso però le risorse reperite non sono disponibili nel momento del bisogno perché ne abbiamo perso le tracce. In questa esercitazione ti viene proposto di creare un indice di risorse internet. Normalmente questi collegamenti vengono creati come segnalibri nel browser, tuttavia è meglio memorizzarli su un supporto rimovibile o direttamente in Internet così da averli sempre a disposizione. Vi sono siti che permettono di creare e amministrare un proprio boormak. MyBookmars.com è fra quelli che offrono questo servizio gratuitamente.

Quinta esercitazione: un salto in libreria

A corredo della "cassetta degli attrezzi" è utile disporre di guide e manuali. Anche se molte informazioni possiamo reperirle in Internet, è bene cercare anche fra gli scaffali delle librerie. Ecco alcune informazioni bibliografiche che potrai arricchire con una visita ad una libreria specializzata.

Titolo	Editore	Prezzo
Aggiornare e riparare i PC	Pearson Italia	Euro 25.00
Hardware Vol. 1 Sistema base	Apogeo	Euro 40,28
Hardware Vol. 2 Periferiche e comunicazione	Apogeo	Euro 40,28
Il tuo PC Soluzioni dalla A alla Z	Mondadori Informatica	Euro 10,70

Per trovare un elenco dettagliato dei volumi che trattano le problematiche dell'hardware consulta il sito Librinformatica.com.

Torna alla prima pagina

CREARE UN DISCO DOS CON SUPPORTO DEL CDROM

1. Formattare un dischetto trasferendovi i file del sistema operativo. Se si lavora in una finestra DOS utilizzare il comando:
   FORMAT A: /S

2. Copiare nel dischetto i seguenti file per gestire la memoria. Se si lavora in una finestra DOS utilizzare il comando:
   COPY C:\WINDOWS\EMM386.EXE A:\
   COPY C:\WINDOWS\HIMEM.SYS A:\

3. Copiare nel dischetto i seguenti file per caricare la tastiera italiana. Se si lavora in una finestra DOS utilizzare il comando:
   COPY C:\WINDOWS\COMMAND\KEYB.COM A:\
   COPY C:\WINDOWS\COMMAND\KEYBOARD.SYS A:\

4. Copiare nel dischetto il file per gestire i driver del CDROM. Se si lavora in una finestra DOS utilizzare il comando:
   COPY C:\WINDOWS\COMMAND\MSCDEX.EXE A:\

5. Copiare nel dischetto i file FDISK e EDIT Se si lavora in una finestra DOS utilizzare il comando:
   COPY C:\WINDOWS\COMMAND\FDISK.EXE A:\
   COPY C:\WINDOWS\COMMAND\EDIT.COM A:\

6. Creare il file AUTOEXEC.BAT con i seguenti comandi. Se si lavora in una finestra DOS utilizzare il comando:
   A>:\ EDIT AUTOEXEC.BAT
   Comandi da inserire:
   @echo off
   PATH=A:\
   keyb it
   LH mscdex.exe /d:mscd001 /l:d

7. Creare il file CONFIG.SYS con i seguenti comandi. Se si lavora in una finestra DOS utilizzare il comando:
A>:\ EDIT CONFIG.SYS
Comandi da inserire:
DOS=HIGH,UMB
DEVICE=HIMEM.SYS
DEVICE=EMM386.EXE NOEMS
DEVICE=OAKCDROM.SYS /D:MSCD001
DEVICE=ASPICD.SYS /D:MSCD001
DEVICE=BTCDROM.SYS /D:MSCD001

8. Copiare nel dischetto i driver universali per il riconoscimento del CDROM. Normalmente questi driver garantiscono il riconoscimento del lettore CD. In caso di errore è necessario procurarsi il driver del lettore che si sta utilizzando, copiarlo sul disco ed inserire, nel file config.sys, una linea per gestire il device.

CREARE UN DISCO DI AVVIO CON SUPPORTO NTFS

NTFS è il il file system utilizzato da Windows NT/2000/XP. Un disco di avvio creato con il DOS (file system Fat32) non può leggere i dischi e le partizioni NTFS. Qualora sia necessario accedere a queste unità, ad esempio per recuperare dati in caso di mancato avvio del sistema operativo, si può utilizzare il programma NTFS Reader. Questo programma, in parte di uso gratuito, permette di creare un disco di avvio che consente la lettura del file system NTFS.

NTFS Reader for DOS può essere scaricato all'indirizzo www.ntfs.com. Il suo utilizzo è semplice. Una volta scompattato il file in una cartella, basta lanciare il file NTFSFLOPPYSETUP per creare il disco di boot con supporto della partizione NTFS.

Dopo aver avviato il computer con il disco di boot così creato e aver scelto l'opzione [0] Active@NTFS Reader, comparirà la schermata del programma
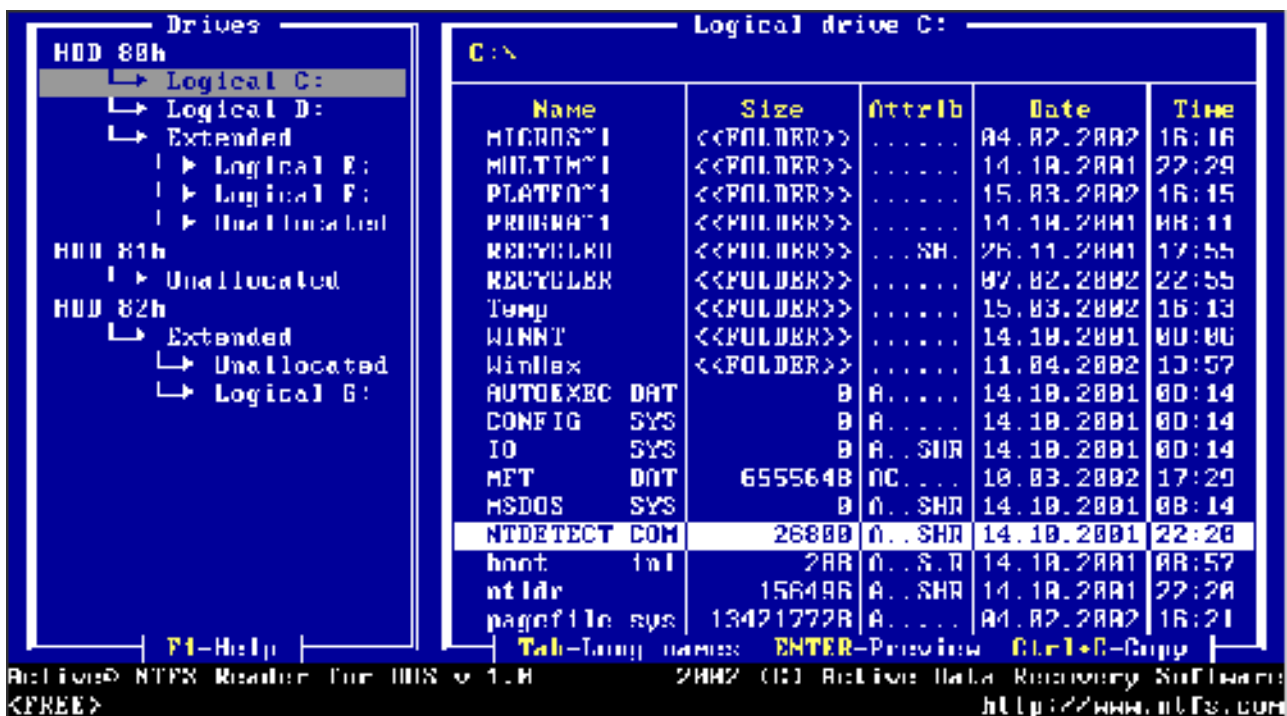
Nella parte di sinistra vengono mostrati i dischi e le partizioni presenti nel sistema.

Per accedere ad una partizione è necessario prima selezionarla, utilizzando i tasti di movimento del cursore, poi confermare con il tasto Invio. In questo modo sulla destra verranno elencate le cartelle e file presenti nel disco.

Il tasto TAB consente di passare dalla visualizzare in formato DOS (nomi corti) a quella tipica del file system NTFS (nomi estesi).

La combinazione dei tasti CTRL+F consente la ricerca dei file.

La combinazione di tasti CTRL+C consente la copia dei file su un altro supporto (floppy, disco partizione).

Il manuale del programma è presente nella cartella dove è stato scompattato il programma.
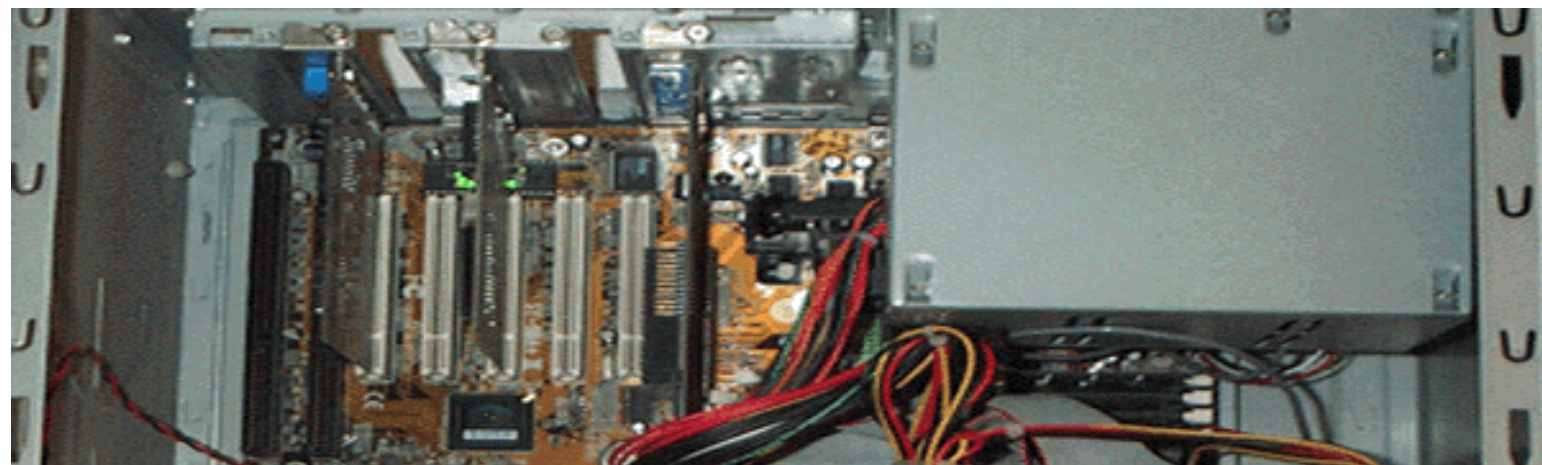
L'architettura del computer

Un buon esercizio per comprendere l'architettura di un PC è quello di smontare e rimontare i suoi componenti.

Aprire un computer non è un'operazione complessa: se si procede con cautela, annotando la posizione delle schede che si smontano, osservando la tipologia dei componenti, la forma e la disposizione dei connettori, procedere al successivo assemblaggio non sarà un'operazione difficile.

A lavoro ultimato ciò che si sarà appreso con l'esperienza saranno conoscenze preziose per individuare e risolvere un malfunzionamento.

Quando si smonta un componente è utile approfondire la comprensione delle sue funzioni, acquisire la conoscenza dei termini informatici che descrivono il suo funzionamento, verificare il supporto offerto nel sito Internet del produttore (aggiornamento dei driver, FAQ, manuali, ecc.).

Infine, sarà utile compilare una tabella che consenta il successivo reperimento delle informazioni sul PC e sulle periferiche collegate.

Prima esercitazione: assemblaggio di un PC

Se possiedi un PC funzionante, ma che è stato accantonato perché obsoleto, prova a smontarlo, annota le caratteristiche dei vari componenti, procedi nuovamente all'assemblaggio del computer.
Aiutati con la guida "Come si monta un PC" curata dal sito "Hardware Upgrade". Si tratta di un testo un po' datato, ma ancora valido in quanto redatto in modo chiaro ed esaurente.

Seconda esercitazione: registrare i componenti di un PC
Utilizza questa scheda per annotare le informazioni sulle caratteristiche del computer che stai assemblando.

Quarta esercitazione: acquisire informazioni sul sistema
Windows dispone di un programma, Microsoft System Information, che consente di acquisire informazioni sui componenti installati e sulla configurazione del sistema.
Vi sono svariati programmi che svolgono in modo efficace la stessa funzione. Utilizzando Microsoft System Information, o uno dei seguenti programmi, verifica la correttezza delle informazioni sui componenti che stai assemblando.

PCinfo: informazioni sul sui componenti installati e sul sistema;
Fresh Diagnose: analisi del sistema e delle sue prestazioni (benchmark).

Torna alla prima pagina

Microsoft System Information

Il programma si avvia utilizzando questo percorso:
Start/Programmi/Accessori/Utilità di sistema/System Information
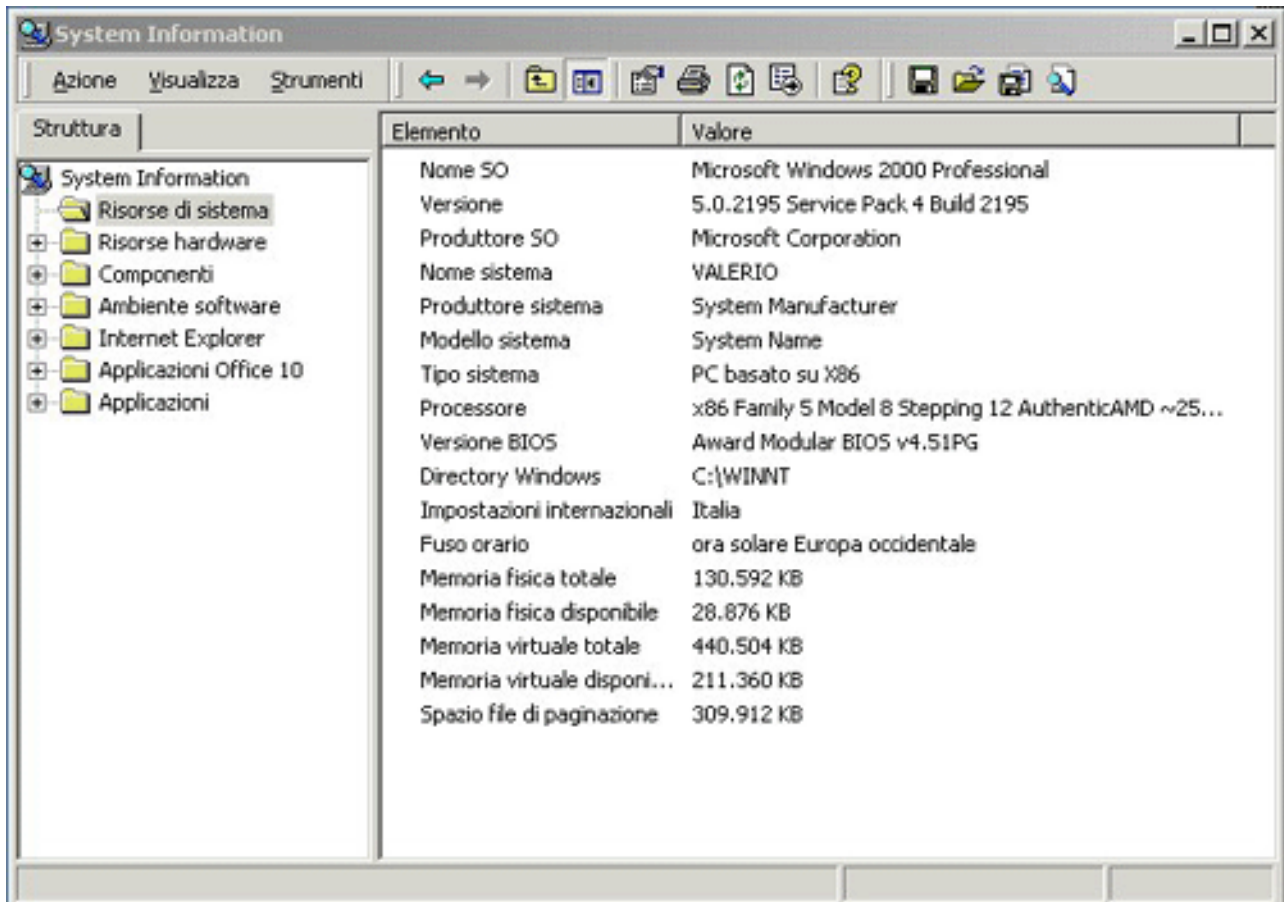
Microsoft System Information è organizzato in categorie (la descrizione si riferisce alla versione disponibile in Windows 2000):

- **Risorse di sistema**: vengono visualizzate le informazioni generali relative al computer e alla versione del sistema operativo installato. Le risorse includono il nome e il tipo di sistema, il nome della directory di sistema Windows, le impostazioni internazionali e le statistiche relative alla memoria fisica e virtuale.
- **Risorse hardware:** sono visualizzate le impostazioni specifiche dell'hardware, vale a dire gli indirizzi DMA, IRQ e I/O e gli indirizzi della memoria.
  Nell'opzione **Conflitti/Condivisioni** sono identificate le periferiche che condividono risorse o che sono in conflitto.

- **Componenti**: vengono visualizzate le informazioni relative alla configurazione di Windows e ai dispositivi installati. Le informazioni, raggruppate per categorie (Multimedia, rete, Schermo, ecc.) e consentono fra l'altro di verificare i driver utilizzati da ogni dispositivo.
- **Ambiente software:** anche questa voce è organizzata per categorie. Contiene le informazioni sul software caricato nella memoria del computer. È possibile utilizzare queste informazioni per stabilire se un processo è in esecuzione.

Oltre a queste voci possono essere presenti altre informazioni aggiunte da applicazioni installate nel sistema.

Nel menu Strumenti sono presenti varie opzioni per identificare e risolvere i problemi (Dr. Waston, Rapporto bug di Windows, ecc..), la guida in linea offre una spiegazione dettagliata per il loro utilizzo.
Tutte le informazioni possono essere salvate e stampate.

La scheda madre e la CPU

La scheda madre (motherboard), insieme alla CPU, è il componente fondamentale di un personal computer, in quanto le sue caratteristiche determinano e condizionano le prestazioni complessive del PC.

Nonostante la sua importanza la scheda madre è un componente a cui spesso si presta poca attenzione. Scopo di questa unità è quello di approfondire la conoscenza della sua struttura e dei suoi principali componenti (CPU, chipset, memorie, BIOS, connettori).

Puoi raggiungere il sito internet dei principali produttori di schede madri attraverso questi collegamenti:

Produttore	Sito WEB
ABIT	www.abit.com.tw/page/it/index.php
AOpen	italy.aopen.com.tw/
ASUS	www.asus.it/
GIGABYTE	tw.giga-byte.com/
Intel	indigo.intel.com/mbsg/
MSI	www.msi.com.tw/program/products/mainboard/mbd/pro_mbd_list.php
Shuttle	www.shuttle.com/hq/support/faq/mainboard/mb.asp
Soyo	www.soyo.com.tw/products/
Super Micro	http://www.supermicro.com/Product_page/product-m.htm

Prima esercitazione: struttura della scheda madre

Utilizza la "Guida alle schede madri" del sito "Hardware Upgrade" per approfondire la conoscenza della struttura e dei principali componenti della scheda madre.
Si tratta di un testo un po' datato, ma ancora valido in quanto redatto in modo chiaro ed esaurente.

Seconda esercitazione: individuazione dei componenti
Questa attività ha lo scopo di verificare la tua capacità di individuare i componenti di una scheda madre. Poiché non è possibile procedere all'apertura di un PC, ti saranno proposte alcune immagini, il tuo compito sarà quello di individuare i componenti. Per ogni scheda madre ti verrà fornito anche il layout, in modo che tu possa verificare il lavoro svolto.

Scheda madre	immagine (file JPEG)	Layout (file PDF)
ASUS A7V8X-X	A7V8X-X	A7V8X-X
GigaByte GA-7VKML	GA-7VKML	GA-7VKML
M.S.I. MS-6119	MS-6119	MS-6119
SOYO SY-5EHM	SY-5EHM	SY-5EHM

Terza esercitazione: socket e slot
Come hai già avuto modo di osservare nel corso della prima esercitazione, ad ogni tipologia di connettore (socket o slot) corrisponde una diversa classe di processori.
Questa esercitazione ha lo scopo di farti conoscere i vari connettori per CPU attualmente in commercio. L'esercitazione è stata fatta utilizzando il sito Internet della Micro-Star International. Ripeterla partendo dal sito internet di un'altro produttore di scheda madri.

Connettore	Immagine e scheda con le caratteristiche della motherboard
Socket 478	MSI 661FM

Socket 754	MSI K8T Neo-FIS2R
Socket A (462)	MSI KT4AV
Socket 370	MSI 6198
Socket 423	MSI 845 Pro
Socket 7	MSI MS-5187
Slot 1	MSI MS-6182
Slot 2	MSI MS-6135
Slot A	MSI K7 Pro

Quarta esercitazione: individuare la CPU
Utilizza il programma PCinfo [file zippato di 809 kB] per verificare le CPU montate nei computer del tuo laboratorio. Per ogni processore cerca di individuare quale tipo di connettore (socket o slot) è utilizzato
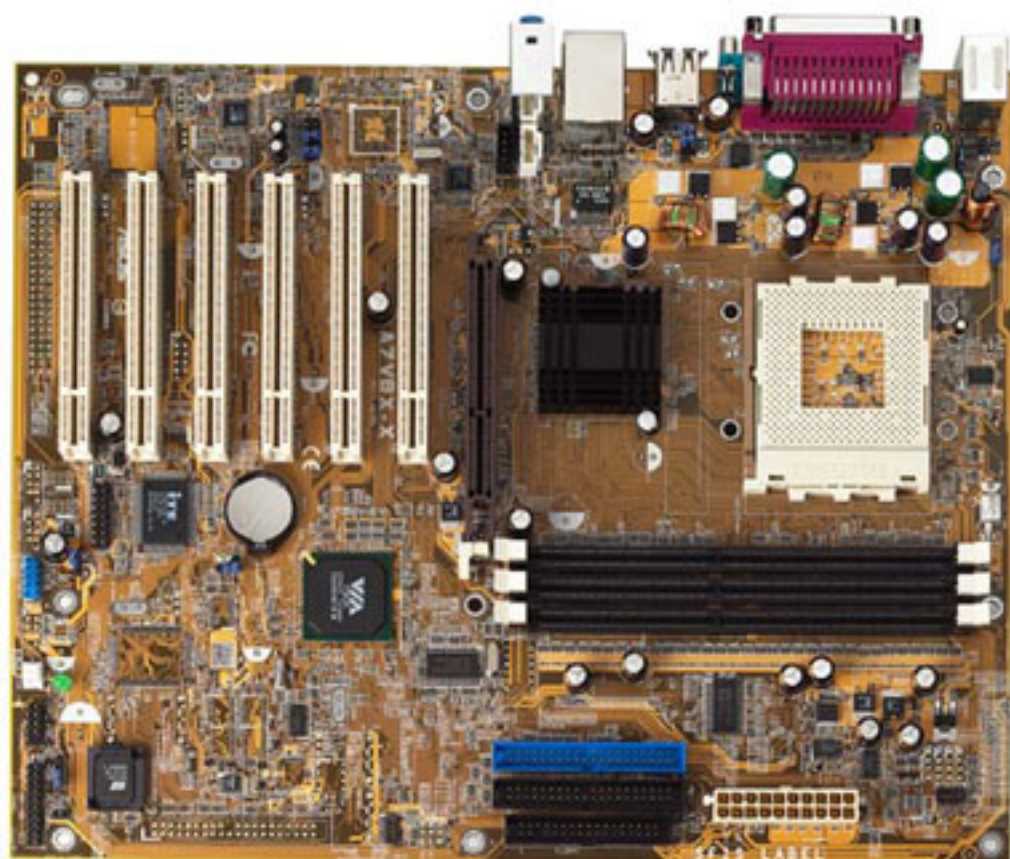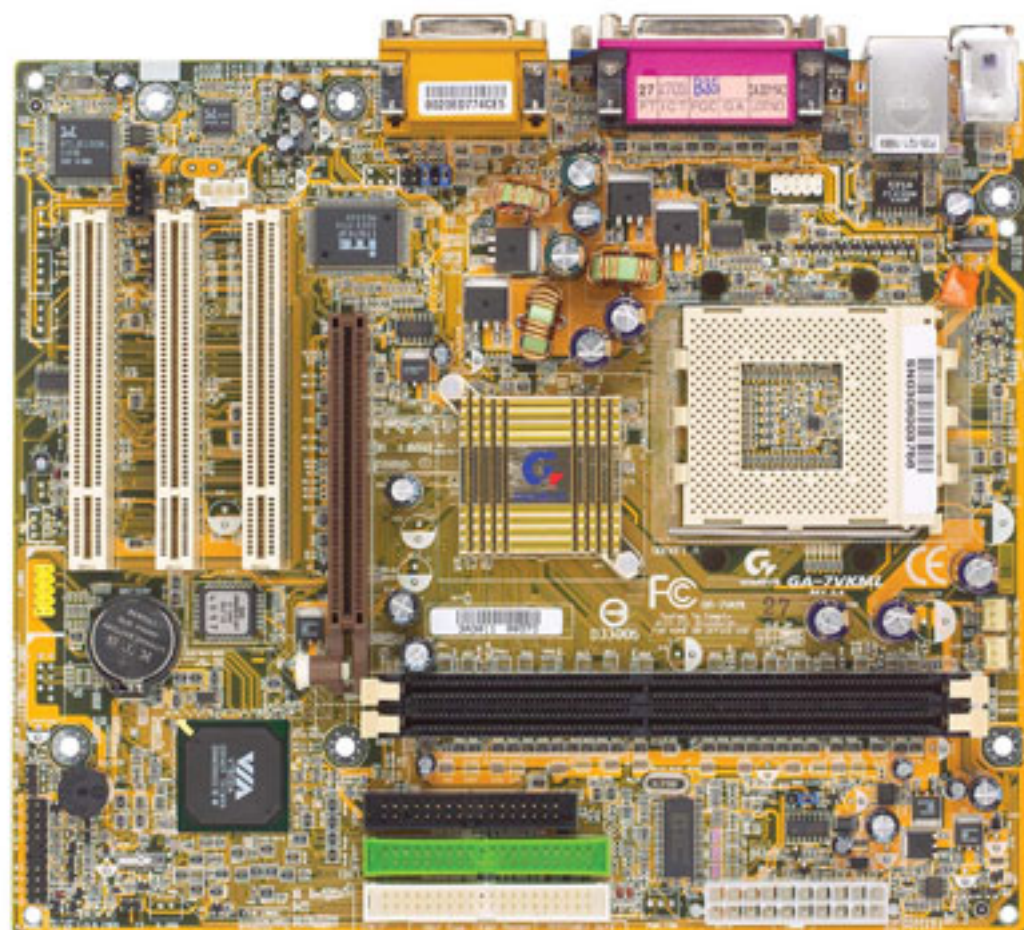
Documento protetto incorporato

Il file *file:///F|/keyboarderror/mthboard/schede/aus%20a7v8x-x.pdf* è un documento protetto incorporato in questo documento. Fare doppio clic sulla puntina da disegno per visualizzare.

- The author assumes no responsibility for any errors or omissions that may appear in this document nor does the author make a commitment to update the information contained herein.

- Third-party brands and names are the property of their respective owners.

- Please do not remove any labels on motherboard, this may void the warranty of this motherboard.

- Due to rapid change in technology, some of the specifications might be out of date before pwblicution of this booklet.

WARNING: Never run the processor without the heatsink properly and firmly attached. PERMANENT DAMAGE WILL RESULT!

Mise en garde : Ne faites jamais tourner le processeur sans que le dissipateur de chaleur soit fixé correctement et fermement. UN DOMMAGE PERMANENT EN RÉSULTERA !

Achtung: Der Prozessor darf nur in Betrieb genommen werden, wenn der Wärmeableiter ordnungsgemäß und fest angebracht ist. DIES HAT EINEN PERMANENTEN SCHADEN ZUR FOLGE!

Advertencia: Nunca haga funcionar el procesador sin el disipador de calor instalado correcta y firmemente. ¡SE PRODUCIRÁ UN DAÑO PERMANENTE!

Aviso: Nunca execute o processador sem o dissipador de calor estar adequado e firmemente conectado. O RESULTADO SERÁ UM DANO PERMANENTE!

警告： 将散热板牢固地安装到处理器上之前，不要运行处理器。过热将永远损坏处理器!

警告： 將散熱器牢固地安裝到處理器上之前，不要運行處理器。過熱將永遠損壞處理器!

경고： 히트싱크를 제대로 또 단단히 부착시키지 않은 채 프로세서를 구동시키지 마십시오. 영구적 고장이 발생합니다!

警告： 永久的な損傷を防ぐため、ヒートシンクを正しくしっかりと取り付けるまでは、プロセッサを動作させないようにしてください。

Declaration of Conformity

We, Manufacturer/Importer
(full address)

G.B.T. Technology Träding GMbH
Ausschlager Weg 41, 1F, 20537 Hamburg, Germany

declare that the product
(description of the apparatus, system, installation to which it refers)

Mother Board
GA-7VKML
is in conformity with
(reference to the specification under which conformity is declared)
in accordance with 89/336 EEC-EMC Directive

☐ EN 55011	Limits and methods of measurement of radio disturbance characteristics of industrial,scientific and medical (ISM high frequency equipment	☐ EN 61000-3-2* ☒ EN 60555-2	Disturbances in supply systems cause by household appliances and similar electrical equipment "Harmonics"
☐ EN 55013	Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment	☐ EN 61000-3-3* ☒ EN 60555-3	Disturbances in supply systems cause by household appliances and similar electrical equipment "Voltage fluctuations"
☐ EN 55014	Limits and methods of measurement of radio disturbance characteristics of household electrical appliances, portable tools and similar electrical apparatus	☒ EN 50081-1 ☒ EN 50082-1	Generic emission standard Part 1: Residual commercial and light industry Generic immunity standard Part 1: Residual commercial and light industry
☐ EN 55015	Limits and methods of measurement of radio disturbance characteristics of fluorescent lamps and luminaries	☐ EN 55081-2	Generic emission standard Part 2: Industrial environment
☐ EN 55020	Immunity from radio interference of broadcast receivers and associated equipment	☐ EN 55082-2	Generic emission standard Part 2: Industrial environment
☒ EN 55022	Limits and methods of measurement of radio disturbance characteristics of information technology equipment	☐ ENV 55104	Immunity requirements for household appliances tools and similar apparatus
☐ DIN VDE 0855 ☐ part 10 ☐ part 12	Cabled distribution systems; Equipment for receiving and/or **distribution** from sound and television signals	☐ EN50091-2	EMC requirements for uninterruptible power systems (UPS)

☒ CE marking

CE (EC conformity marking)

The manufacturer also declares the conformity of above mentioned product
with the actual required safety standards in accordance with LVD 73/23 EEC

☐ EN 60065	Safety requirements for mains operated electronic and related apparatus for household and similar general use	☐ EN 60950	
☐ EN 60335	Safety of household and similar electrical appliances	☐ EN 50091-1	

Manufacturer/Importer

(Stamp)

Date : July 31, 2002

Signature: *Timmy Huang*
Name: Timmy Huang

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2.1077(a)

Responsible Party Name: G.B.T. INC. (U.S.A.)

Address: 17358 Railroad Street

City of Industry, CA 91748

Phone/Fax No: (818) 854-9338/ (818) 854-9339

hereby declares that the product

Product Name: Motherboard

Model Number: GA-7VKML

Conforms to the following specifications:

FCC Part 15, Subpart B, Section 15.107(a) and Section 15.109(a), Class B Digital Device

Supplementary Information:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful and (2) this device must accept any inference received, including that may cause undesired operation.

Representative Person's Name: ERIC LU

Signature: Eric Lu

Date: July 31,2002

GA-7VKML Series

AMD Socket A Processor Motherboard

USER'S MANUAL

Table of Content

English

Item Checklist

☑ The GA-7VKML series motherboard

☑ IDE cable x 1/ Floppy cable x 1

☑ CD for motherboard driver & utility (VUCD)

☑ GA-7VKML series user's manual

☑ I/O Shield

☐ Quick PC Installation Guide

☐ RAID Manual

☐ 2 Port USB Cable x 1

☐ 4 Port USB Cable x 1

☐ SPDIF KIT x 1(SPD-KIT)

☐ IEEE 1394 Cable x 1

☐ Center/Subwoofer Cable x 1
     (SURROUND-KIT)

☐ Motherboard Settings Label

WARNING!

Computer motherboards and expansion cards contain very delicate Integrated Circuit (IC) chips. To protect them against damage from static electricity, you should follow some precautions whenever you work on your computer.

1. Unplug your computer when working on the inside.
2. Use a grounded wrist strap before handling computer components. If you do not have one, touch both of your hands to a safely grounded object or to a metal object, such as the power supply case.
3. Hold components by the edges and try not touch the IC chips, leads or connectors, or other components.
4. Place components on a grounded antistatic pad or on the bag that came with the components whenever the components are separated from the system.
5. Ensure that the ATX power supply is switched off before you plug in or remove the ATX power connector on the motherboard.

Installing the motherboard to the chassis…

If the motherboard has mounting holes, but they don't line up with the holes on the base and there are no slots to attach the spacers, do not become alarmed you can still attach the spacers to the mounting holes. Just cut the bottom portion of the spacers (the spacer may be a little hard to cut off, so be careful of your hands). In this way you can still attach the motherboard to the base without worrying about short circuits. Sometimes you may need to use the plastic springs to isolate the screw from the motherboard PCB surface, because the circuit wire may be near by the hole. Be careful, don't let the screw contact any printed circuit write or parts on the PCB that are near the fixing hole, otherwise it may damage the board or cause board malfunctioning.

Chapter 1   Introduction

Features Summary

Form Factor	• 24.4cm x 21.7cm Micro ATX size form factor, 4 layers PCB. (For PCB Vev.: 1.1)
	• 24.3cm x 21.0cm Micro ATX size form factor, 4 layers PCB. (For PCB Ver.: 3.2~3.4)
Motherboard	• GA-7VKML Series Motherboard: GA-7VKML / GA-7VKML-P / 7VKML-DL
CPU	• Socket A processor AMD Athlon™/Athlon™ XP/Duron™ (K7) Socket A processor 128K L1 & 256K/64K L2 cache on die
	• Supports 1.4GHz and faster
	• 200/266MHz FSB and DDR bus speeds (PCI 33MHz)
Chipset	• VIA KM266 Memory /AGP/PCI Controller (PAC)
	• VIA VT8233A Low cost V-LINK Client Highly Intergated
Memory	• 2 184-pin DDR DIMM sockets
	• Supports PC1600 DDR or PC2100 DDR DIMM
	• Supports up to 2GB DRAM (Max)
	• Supports only 2.5V DDR DIMM
	• Supports 64bit DRAM integrity mode
I/O Control	• IT8705F
Slots	• 1 AGP slot (2X/4X) device support
	• 3 PCI Slots Supports 33MHz & PCI 2.2 compliant
	• 1 CNR (Communication and Networking Riser) Slot (only secondary card) *
On-Board IDE	• 2 IDE bus master (ATA66/100/133) IDE ports for up to 4 ATAPI devices
	• Supports PIO mode3,4 (ATA66/100/133) IDE & ATAPI CD-ROM

"*" Supported on motherboard version: 1.1 only.

to be continued......

On-Board Peripherals	• 1 Floppy port supports 2 FDD with 360K, 720K, 1.2M, 1.44M and 2.88M bytes.
	• 1 Parallel port supports Normal/EPP/ECP mode
	• 2 Serial port (COM A, Internal COM B)
	• 1 VGA port
	• 4 USB ports (Rear USB x 2, Front USB x 2)
	• 1 IrDA connector for IR
Hardware Monitor	• CPU/System Fan Revolution detect
	• CPU/System temperature detect
	• System Voltage Detect
On-Board Sound #	• Realtek ALC101 CODEC
	• Line In/Line Out/Mic In/CD_In/AUX_In /Game Port
On-Board Sound **	• Realtek ALC650 CODEC
	• Line Out / 2 front speaker
	• Line In / 2 rear speaker(by s/w switch)
	• Mic In / center& subwoofer(by s/w switch)
	• SPDIF out
	• CD_In/ AUX_IN/Game Port
On-Board LAN ***	• Build in RTL8100 Chipset
PS/2 Connector	• PS/2 Keyboard interface and PS/2 Mouse interace
BIOS	• Licensed AMI BIOS, 2M bit Flash ROM
	• Support Q-Flash Utility
Additional Features	• STR(Suspend-To-RAM)
	• AC Recovery
	• USB KB/Mouse wake up from S3
	• PS2 KB/Mouse wake up from S1, S3, S4, S5
	• Supports @BIOS™
	• Supports Easy Tune™ 4

" # " Supported 7VKML PCB VER: 3.2 / 3.3 / 3.4.
" ** " Supported GA-7VKML-P / GA-7VKML-DL (PCB VER:3.4)
" * " Supported 7VKML (PCB VER: 3.2 ~ 3.4 and 7VKML-P)**

❦ Please set the CPU host frequency in accordance with your processor's specifications. We don't recommend you to set the system bus frequency over the CPU's specification because these specific bus frequencies are not the standard specifications for CPU, chipset and most of the peripherals. Whether your system can run under these specific bus frequencies properly will depend on your hardware configurations, including CPU, Chipsets,SDRAM,Cards….etc.

GA-7VKML (PCB Ver.: 1.1) Motherboard Layout
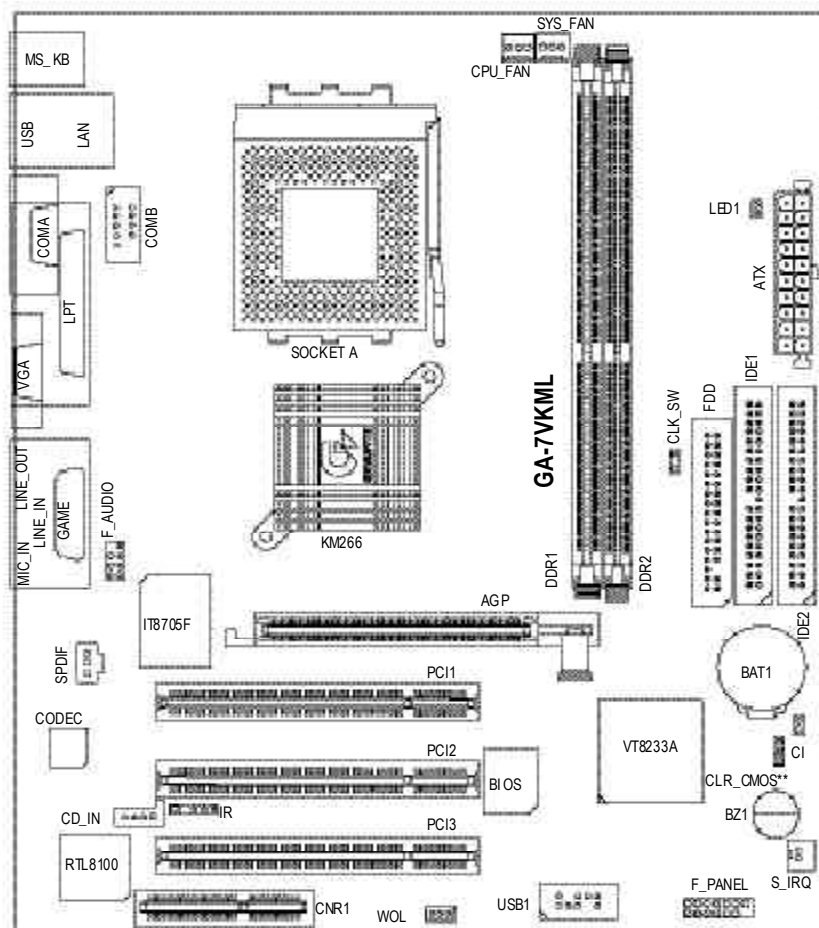
"**" Supported on motherboard version: 1.1 only. Default doesn't include the "Shunter" to prevent from improper use this jumper. To clear CMOS, temporarily short 1-2 pin.

English

GA-7VKML (PCB 3.2/3.3/3.4) Motherboard Layout
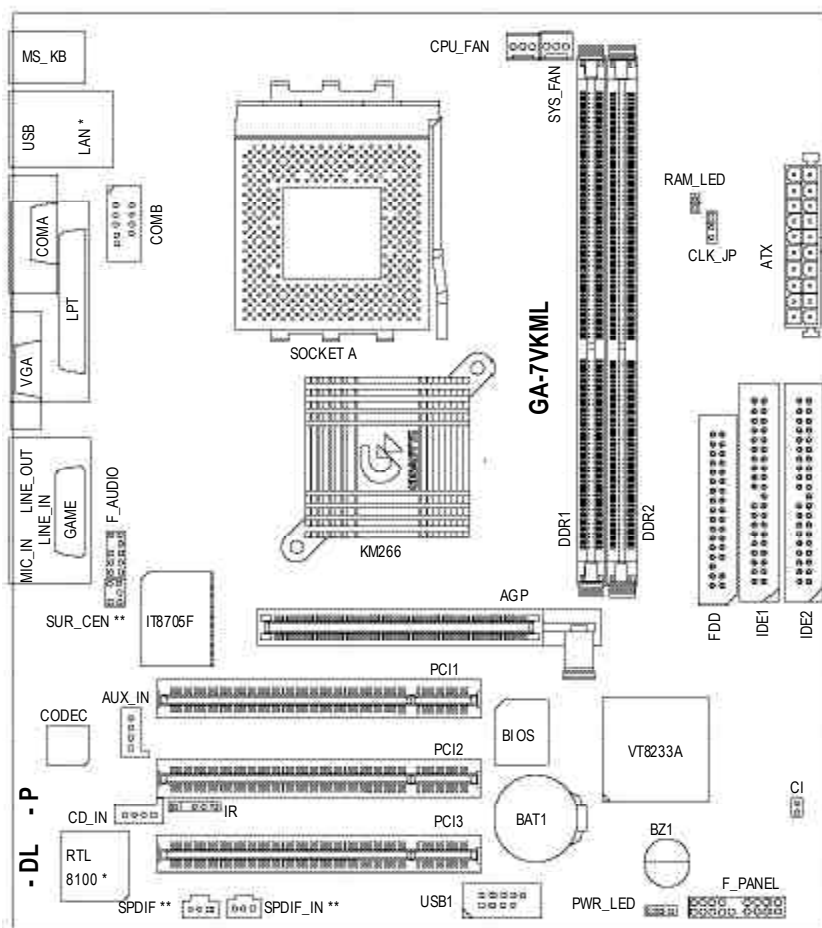
" * " Not Supported 7VKML-DL (PCB VER:3.4)
" ** " Supported 7VKML-P / 7VKML-DL (PCB VER:3.4)

Chapter 2   Hardware Installation Process

To set up your computer, you must complete the following setups:

Step 1- Set system Switch (CLK_SW)...for PCB Ver. 1.1

Step 1- Set system Jumper(CLK_JP)...for PCB Ver. 3.2

Step 2- Install the Central Processing Unit (CPU)

Step 3- Install memory modules

Step 4- Install expansion cards

Step 5- Connect ribbon cables, cabinet wires, and power supply

Step 6- Setup BIOS software

Step 7- Install supporting software tools
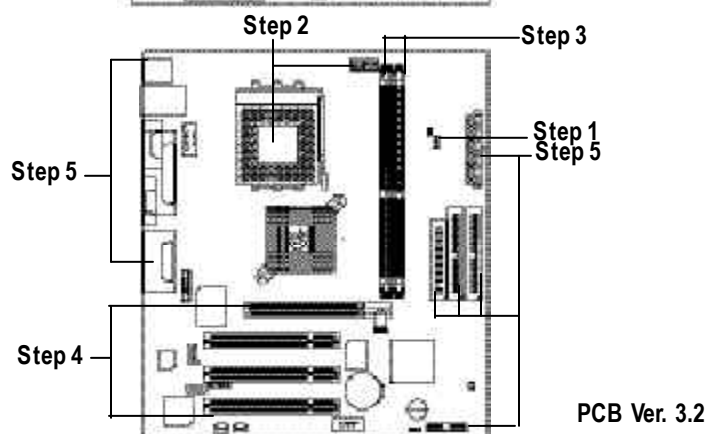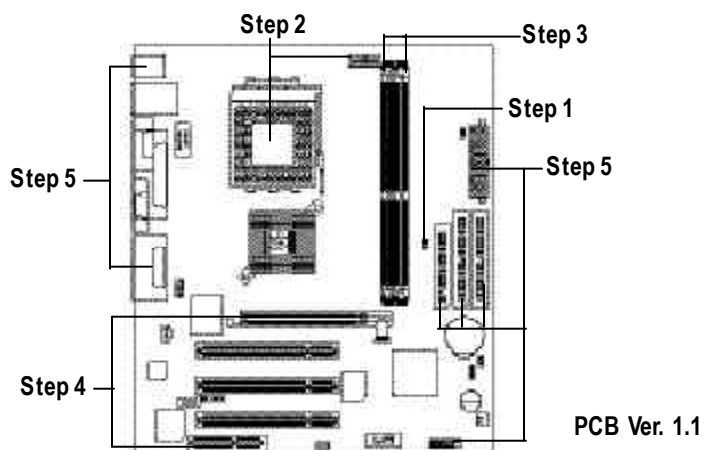
PCB Ver. 1.1

PCB Ver. 3.2

Step 1: Install the Central Processing Unit (CPU)

Step1-1: CPU Speed Setup

The system bus frequency can be switched at 100/133MHz by adjusting CLK_SW.

(The frequency ratio depend on CPU.)

PCB Ver: 1.1 used

CLK_SW	
OFF: 133MHz	
ON: 100MHz	

Default Setting: 100MHz
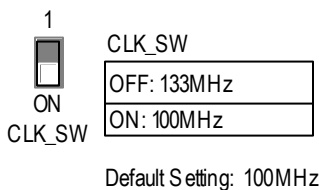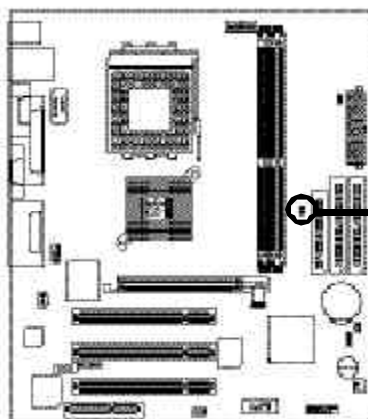
The system bus frequency can be switched at 100/133MHz by adjusting CLK_JP.

(The frequency ratio depend on CPU.)

PCB Ver: 3.2 ~ 3.4 used

1-2 close: 100 MHz

2-3 close: 133 MHz

Default Setting: 100MHz
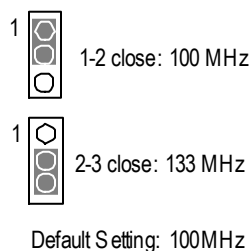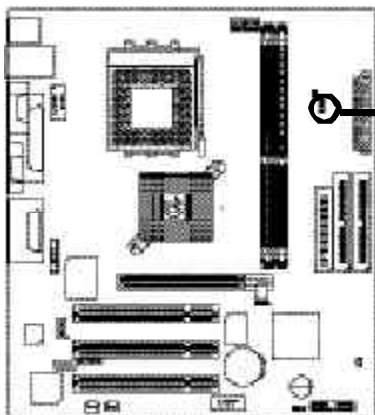
Step1-2: CPU Installation

CPU Top View

CPU Bottom View

Socket Actuation Lever
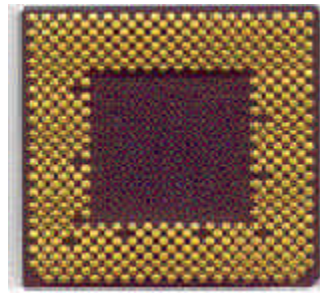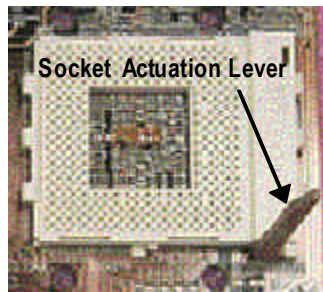
1. Pull up the CPU socket lever
   and up to 90-degree angle.

Pin1 indicator
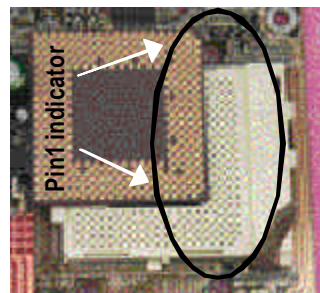
2. Locate Pin 1 in the socket and look
   for a (golden) cut edge on the CPU
   upper corner. Then insert the CPU
   into the socket.

- ♠※ **Please make sure the CPU type is supported by the motherboard.**
- ♠※ **If you do not match the CPU socket Pin 1 and CPU cut edge well, it will cause improper installation. Please change the insert orientation.**

Step1-3: CPU Heat Sink Installation

1.Press down the CPU socket lever and finish CPU installation.

2.Use qualified fan approved by AMD.

3.Fasten the heatsink supporting-base onto the CPU socket on the main-board.
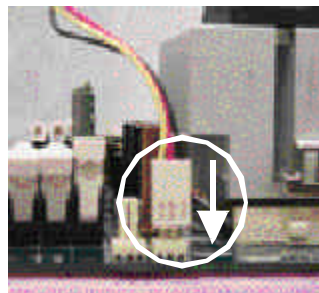
4.Make sure the CPU fan is plugged to the CPU fan connector, than install complete.

- ♠ **Please use AMD approved cooling fan.**
- ♠ **We recommend you to apply the thermal paste to provide better heat conduction between your CPU and heatsink.**
- ♠ **Make sure the CPU fan power cable is plugged in to the CPU fan connector, this completes the installation.**
- ♠ **Please refer to CPU heat sink user's manual for more detail installation procedure.**

Step 2: Install memory modules

The motherboard has 2 dual inline memory module (DIMM) sockets. The BIOS will automatically detects memory type and size. To install the memory module, just push it vertically into the DIMM Slot. The DIMM module can only fit in one direction due to the notch. Memory size can vary between sockets.

Total Memory Sizes With Unbuffered DDR DIMM

Devices used on DIMM	1 DIMM x 64/x 72	2 DIMMs x 64/x 72
64 Mbit (2M x 8 x 4 banks)	128 MBytes	256 MBytes
64 Mbit (1M x 16 x 4 banks)	64 MBytes	128 MBytes
128 Mbit (4M x 8 x 4 banks)	256 MBytes	512 MBytes
128 Mbit (2M x 16 x 4 banks)	128 MBytes	256 MBytes
256 Mbit (8M x 8 x 4 banks)	512 MBytes	1 GBytes
256 Mbit (4M x 16 x 4 banks)	256 MBytes	512 MBytes
512 Mbit (8M x 16 x 4 banks)	512 MBytes	1 GBytes
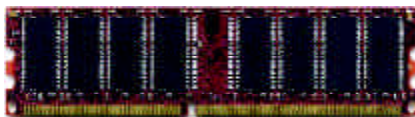
DDR

1. The DIMM slot has a notch, so the DIMM memory module can only fit in one direction.
2. Insert the DIMM memory module vertically into the DIMM slot. Then push it down.
3. Close the plastic clip at both edges of the DIMM slots to lock the DIMM module.
   Reverse the installation steps when you wish to remove the DIMM module.

DDR Introduction

Established on the existing SDRAM industry infrastructure, DDR (Double Data Rate) memory is a high performance and cost-effective solution that allows easy adoption for memory vendors, OEMs and system integrators.

DDR memory is a sensible evolutionary solution for the PC industry that builds on the existing SDRAM infrastructure, yet makes awesome advances in solving the system performance bottleneck by doubling the memory bandwidth. DDR SDRAM will offer a superior solution and migration path from existing SDRAM designs due to its availability, pricing and overall market support. PC2100 DDR memory (DDR266) doubles the data rate through reading and writing at both the rising and falling edge of the clock, achieving data bandwidth 2X greater than PC133 when running with the same DRAM clock frequency. With peak bandwidth of 2.1GB per second, DDR memory enables system OEMs to build high performance and low latency DRAM subsystems that are suitable for servers, workstations, high-end PC's and value desktop SMA systems. With a core voltage of only 2.5 Volts compared to conventional SDRAM's 3.3 volts, DDR memory is a compelling solution for small form factor desktops and notebook applications.

💣 **When RAM_LED is ON, do not install/remove DDR from socket.**

💣 **Please note that the DIMM module can only fit in one direction due to the two notches. Wrong orientation will cause improper installation. Please change the insert orientation.**

Step 3: Install expansion cards

1. Read the related expansion card's instruction document before install the expansion card into the computer.
2. Remove your computer's chassis cover, screws and slot bracket from the computer.
3. Press the expansion card firmly into expansion slot in motherboard.
4. Be sure the metal contacts on the card are indeed seated in the slot.
5. Replace the screw to secure the slot bracket of the expansion card.
6. Replace your computer's chassis cover.
7. Power on the computer, if necessary, setup BIOS utility of expansion card from BIOS.
8. Install related driver from the operating system
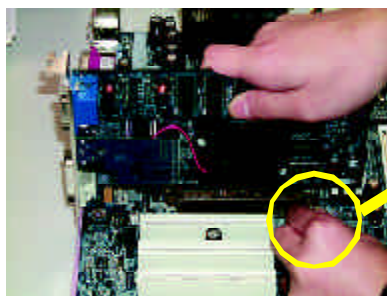
AGP Card

Please carefully pull out the small white-drawable bar at the end of the AGP slot when you try to install/ Uninstall the AGP card. Please align the AGP card to the onboard AGP slot and press firmly down on the slot .Make sure your AGP card is locked by the small white- drawable bar.

Issues To Beware Of When Installing CNR (Only for PCB Ver.: 1.1)

Please use standard CNR card like the one in order to avoid mechanical problem.

Standard CNR card

Step 4: Connect ribbon cables, cabinet wires, and power supply

Step4-1: I/O Back Panel Introduction
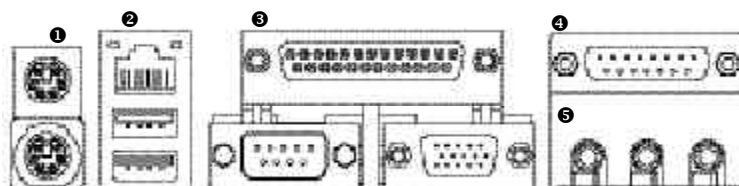
❶ PS/2 Keyboard and PS/2 Mouse Connector

PS/2 Mouse Connector
(6 pin Female)

PS/2 Keyboard Connector
(6 pin Female)

➤ This connector supports standard PS/2 keyboard and PS/2 mouse.

❷ USB & LAN Connector

LAN *

USB1

USB0
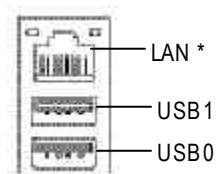
➤ Before you connect your device(s) into USB connector(s), please make sure your device(s) such as USB keyboard,mouse, scanner, zip, speaker..etc. Have a standard USB interface. Also make sure your OS supports USB controller. If your OS does not support USB controller, please contact OS vendor for possible patch or driver upgrade. For more information please contact your OS or device(s) vendors.

" * " Not Supported 7VKML-DL (PCB VER:3.4)

❸ Parallel Port and VGA Port/COMA Port

Parallel Port
(25 pin Female)

COMA   VGA

Serial Port   VGA Port
(9 pin Male)   (15 pin Female)
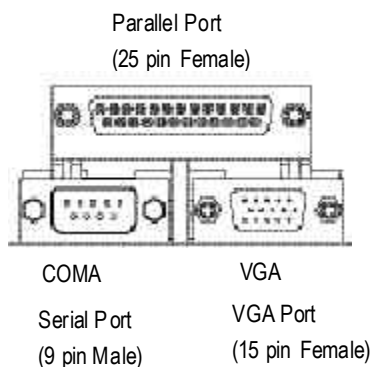
➢ This mainboard sutports 1 standard COM port, 1 VGA port and 1 LPT port. Device like printer can be connected to LPT port ; mouse and modem etc can be connected to COM port.

❹ Game /MIDI Ports
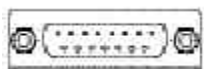
Joystick / MIDI (15 pin Female)

➢ This connector supports joystick, MIDI key board and other relate audio devices.

❺ Audio Connectors

Line Out   MIC In
      Line In
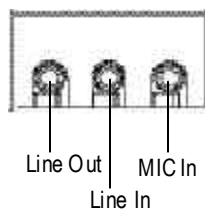
➢ After install onboard audio driver, you may connect speaker to Line Out jack, micro phone to MIC In jack.
Device like CD-ROM , walkman etc can be connected to Line-In jack.
Please note:
You are able to use 2-/4-/6- channel audio feature by S/W selection.
If you want to enable 6-channel function, you have 2 choose for hardware connection.
Method1:
Connect "Front Speaker" to "Line Out"
Connect "Rear Speaker" to "Line In"
Connect "Center and Subwoofer" to "MIC Out".
Method2:
You can refer to page 24, and contact your nearest dealer for optional SUR_CEN cable.

If you want the detail information for 2-/4-/6-channel audio setup installation, please refer to page 79.

Step4-2: Connectors Introduction (For PCB Ver. : 3.2 ~ 3.4)
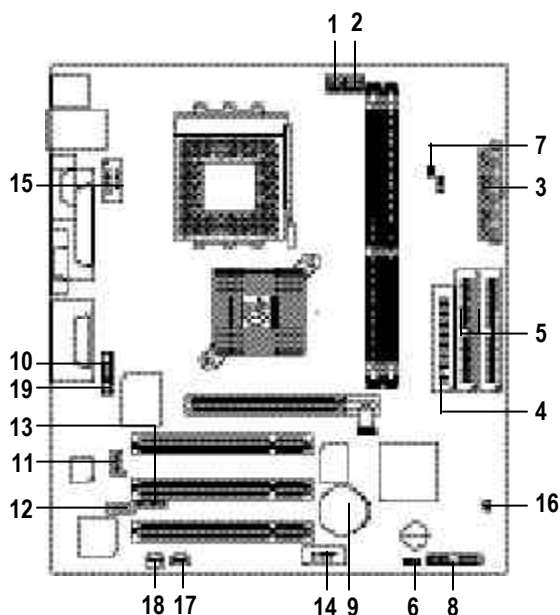
1)	CPU_FAN	10)	F_AUDIO
2)	SYS_FAN	11)	AUX_IN
3)	ATX	12)	CD_IN
4)	FDD	13)	IR
5)	IDE1/IDE2	14)	USB1
6)	PWR_LED	15)	COMB
7)	RAM_LED	16)	CI
8)	F_PANEL	17)	SPDIF_IN *
9)	BAT1	18)	SPDIF *
		19)	SUR_CEN *

" * " Supported 7VKML / 7VKML-P / 7VKML-DL (PCB VER:3.4)

1) CPU_FAN (CPU FAN Connector)

1

GND ——— ——— Sense

+12V/Control
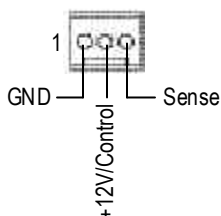
➤ Please note, a proper installation of the CPU cooler is essential to prevent the CPU from running under abnormal condition or damaged by overheating.The CPU fan connector supports Max. current up to 600mA .

2) SYS_FAN (System FAN Connector)

1

GND ——— ——— Sense

+12V/Control
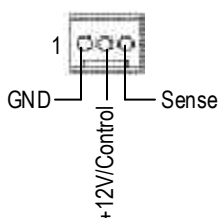
➤ This connector allows you to link with the cooling fan on the system case to lower the system temperature.

3) ATX (ATX Power)

20

+12V	VCC
5V SB (Stand by +5V)	VCC
Power Good	-5V
GND	GND
VCC	GND
GND	GND
VCC	PS-ON(Soft On/Off)
GND	GND
3.3V	-12V
3.3V	3.3V

1
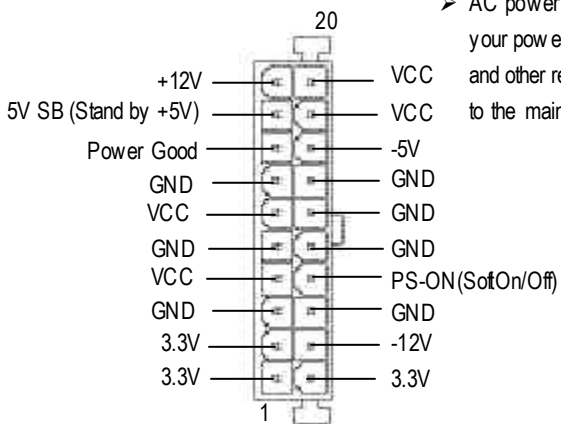
➤ AC power cord should only be connected to your power supply unit after ATX power cable and other related devices are firmly connected to the mainboard.

Hardware Installation Process

4) FDD (Floppy Connector)
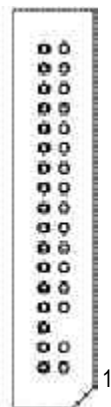
➢ Please connect the floppy driver ribbon cables
to FDD. It supports 360K,1.2M,720K,1.44M
and 2.88M bytes floppy disk types.
The rad stripe of the ribbn cable must be the
same side with the Pin1.

5) IDE1/IDE2 [IDE1 (Primary), IDE2(Secondary) Connector]

IDE1   IDE2

1   1
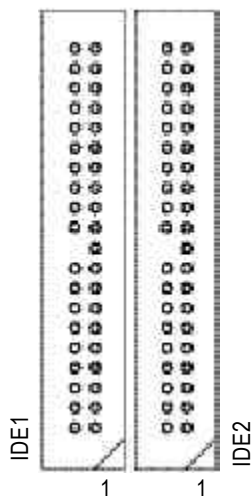
➢ Important Notice:
Please connect first harddisk to IDE1 and
connect CDROM to IDE2.
The rad stripe of the ribbn cable must be the
same side with the Pin1.

6) PWR_LED

1

MPD+
MPD-
MPD-
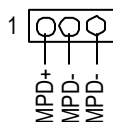
➢ PWR_LED is connect with the system power
indicator to indicate whether the system is
on/off. It will blink when the system enters
suspend mode. If you use dual color LED,
power LED will turn to another color.

7) RAM_LED

+

ı

➢ Do not remove memory modules while DIMM LED is on. It might cause short or other unexpected damages due to the 2.5V stand by voltage. Remove memory modules only when AC Power cord is disconnected.

8) F_PANEL (2x10 pins jumper)
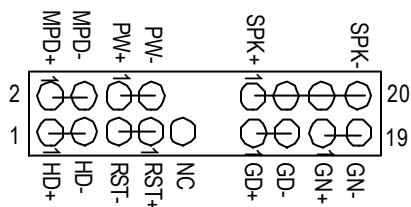
GN (Green Switch)	Open: Normal Operation
	Close: Entering Green Mode
GD (Green LED)	Pin 1: LED anode(+)
	Pin 2: LED cathode(-)
HD (IDE Hard Disk Active LED)	Pin 1: LED anode(+)
	Pin 2: LED cathode(-)
SPK (Speaker Connector)	Pin 1: VCC(+)
	Pin 2- Pin 3: NC
	Pin 4: Data(-)
RST (Reset Switch)	Open: Normal Operation
	Close: Reset Hardware System
PW (Soft Power Connector)	Open: Normal Operation
	Close: Power On/Off
MPD(Message LED/Power/ Sleep LED)	Pin 1: LED anode(+)
	Pin 2: LED cathode(-)

➢ Please connect the power LED, PC speaker, reset switch and power switch etc of your chassis front panel to the F_PANEL connector according to the pin assignment above.

9) BAT1 (Battery)
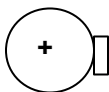
CAUTION

❖ Danger of explosion if battery is incorrectly replaced.

❖ Replace only with the same or equivalent type recommended by the manufacturer.

❖ Dispose of used batteries according to the manufacturer's instructions.

10) F_AUDIO (Front Audio)

```
          1   2
MIC ───────○  ○─── GND
REF ───────○  ○─── POWER
Front Audio (R) ─○  ○─ Rear Audio (R)
Reserved ──────○
Front Audio ─────○  ○─ Rear Audio (L)
(L)        9  10
```
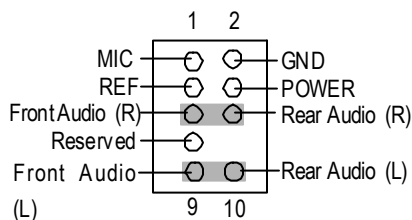
➢ If you want to use "Front Audio" connector, you must move 5-6, 9-10 Jumper. In order to utilize the front audio header, your chassis must have front audio connector. Also please make sure the pin assigment on the cable is the same as the pin assigment on the MB header. To find out if the chassis you are buying support front audio connector, please contact your dealer.

11) CD_IN (CD Audio Line In)

```
       ○
  ○  ○  ○  ○  1
CD-R      CD-L
    GND
```
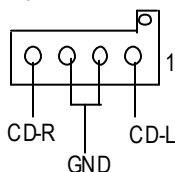
➢ Connect CD-ROM or DVD-ROM audio out to the connector.

12) AUX_IN (AUX_IN Connector)

```
AUX-R ─○
GND  ─○
     ─○
AUX-L ─○
      1
```
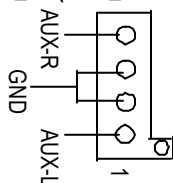
➢ Connect other device(such as PCI TV Tunner audio out)to the connector.

13) IR (IR)

```
1 □ ○ ○ ○ ○
VCC(+5V) NC IR data input GND IR data output
```
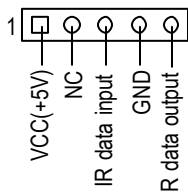
➢ Please note, Be careful with the polarity of the IR connector while you connect the IR. Please contact you nearest dealer for optional IR device.

14) F_USB1 (Front USB Connector)
(F_USB1 connector in yellow is for
USB 1.1)

USBDy+
USBDy- GND
Power USB
     Over
1   Current
     GND
Power
USBDx-
     USBDx+
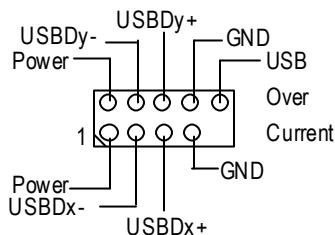
➢ Be careful with the polarity of the front
  USB connector. Check the pin assignment
  while you connect the front USB cable.
  Please contact your nearest dealer for
  optional front USB cable.

15) COM B (White)

      1 2
NDCDB-   NSINB
NSOUTB   NDTRB-
GND   NDSRB-
NRTSB-   NCTSB-
NRIB- 9 10 NC
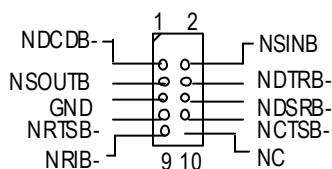
➢ Be careful with the polarity of the COMB
  connector. Check the pin assignment
  while you connect the COMB cable.
  Please contact your nearest dealer for
  optional COMB cable.

16) CI (Case Open)

Signal
GND   1
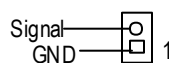
➢ This 2 pin connector allows your system to
  enable or disable the "case open" item in
  BIOS if the system case begin remove.
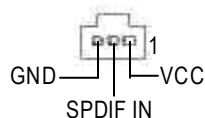
17) SPDIF_IN *

      1
GND   VCC
   SPDIF IN

➢ The SPDIF output is capable of providing
  digital audio to external speakers or com
  pressed AC3 data to an external Dolby
  Digital Decoder. Use this feature only when
  your stereo system has digital input
  function.

18) SPDIF *

      1
GND   VCC
   SPDIF Out
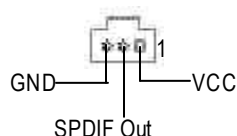
➢ Use this feature only when your device has
  digital output function.

" * " Supported 7VKML / 7VKML-P / 7VKML-DL (PCB VER:3.4)

19) SUR_CEN *

BASS_OUT —— ◯◯ —— CENTER_OUT
—— ◯ —— GND
SUR OUTR —— ◯◯ —— SUR OUTL
1
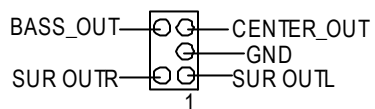
➢ Please contact your nearest dealer for optional SUR_CEN cable.

" * " Supported 7VKML / 7VKML-P / 7VKML-DL (PCB VER:3.4)

Step4-3: Connectors Introduction (For PCB Ver. : 1.1)
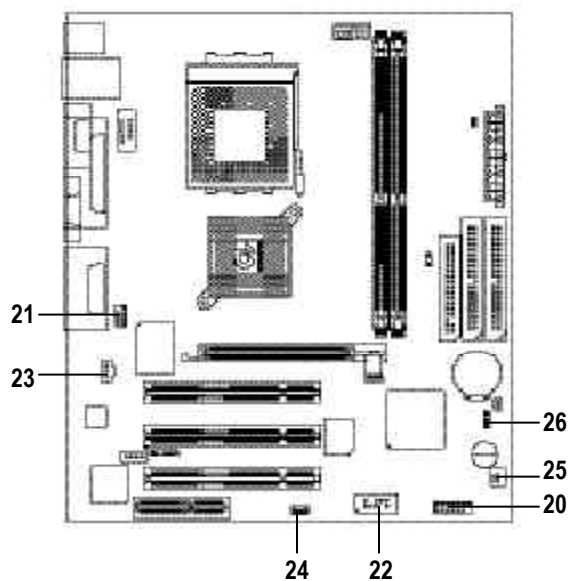
20) F_Panel	24) WOL
21) F_AUDIO	25) S_IRQ
22) USB1	26) CLR_CMOS
23) SPDIF	

20) F_PANEL (2x7 pins connector)
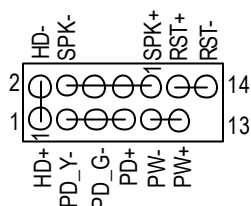
HD (IDE Hard Disk Active LED)	Pin 1: LED anode(+)
	Pin 2: LED cathode(-)
SPK (Speaker Connector)	Pin 1: VCC(+)
	Pin 2- Pin 3: NC
	Pin 4: Data(-)
RST (Reset Switch)	Open: Normal Operation
	Close: Reset Hardware System
PD+/PD_G-/PD_Y-(Power LED)	Pin 1: LED anode(+)
	Pin 2: LED cathode(-)
	Pin 3: LED cathode(-)
PW (Soft Power Connector)	Open: Normal Operation
	Close: Power On/Off

➢ Please connect the power LED, PC speaker, reset switch and power switch etc of your chassis front panel to the F_PANEL connector according to the pin assignment above.

21) F_AUDIO (Front Audio)
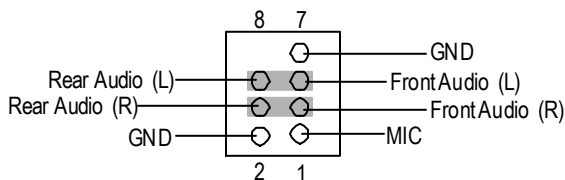
➢ If you want to use "Front Audio" connector, you must remove 3-4, 5-6 Jumper. In order to utilize the front audio header, your chassis must have front audio connector. Also please make sure the pin assigment on the cable is the same as the pin assigment on the MB header. To find out if the chassis you are buying support front audio connector, please contact your dealer.

22) USB1 (Front USB)

GND
NC
USB D3+
USB D3-
Power
1
Power
USB D2-
USB D2+
NC
GND
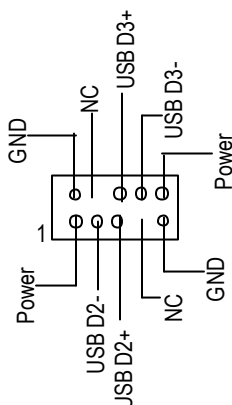
➢ Be careful with the polarity of the front panel USB connector. Check the pin assignment while you connect the front panel USB cable. Please contact your nearest dealer for optional front panel USB cable.

23) SPDIF (SPDIF)
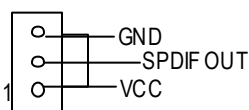
GND
SPDIF OUT
VCC
1

➢ The SPDIF output is capable of providing digital audio to external speakers or compressed AC3 data to an external Dolby Digital Decoder. Use this feature only when your stereo system has digital output function.

24) WOL (Wake On Lan)

1
+5V SB
GND
Signal
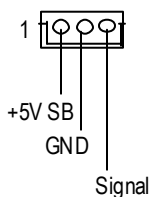
➢ This connector allows the remove servers to manage the system that in stalled this mainboard via your network adapter which also supports WOL.

25) S_IRQ (Serial IRQ)

GND
Signal
1
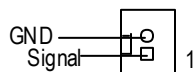
➢ Please Note: For special design, for example: PCMCIA add on card.

26) CLR_CMOS (Clear CMOS Function)

1-2 close: Clear CMOS

2-3 close: Normal (Default)

➢ Please note: You may clear the CMOS data to its default values by this jumper.
**Default doesn't include the "Shunter" to prevent from improper use this jumper.
To clear CMOS, temporarily short 1-2 pin.**

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Chapter 3   BIOS Setup

BIOS Setup is an overview of the BIOS Setup Program. The program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM so that it retains the Setup information when the power is turned off.

ENTERING SETUP

Powering ON the computer and pressing <Del> immediately will allow you to enter Setup. If you require more advanced BIOS settings, please go to "Advanced BIOS" setting menu. To enter Advanced BIOS setting menu, press "Ctrl+F1" key on the BIOS screen.

CONTROL KEYS

<↑>	Move to previous item
<↓>	Move to next item
<←>	Move to the item in the left hand
<→>	Move to the item in the right hand
<Enter>	Select item
<Esc>	Main Menu - Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu - Exit current page and return to Main Menu
<+/PgUp>	Increase the numeric value or make changes
<-/PgDn>	Decrease the numeric value or make changes
<F1>	General help, only for Status Page Setup Menu and Option Page Setup Menu
<F2>	Reserved
<F3>	Reserved
<F4>	Reserved
<F5>	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
<F6>	Load the file-safe default CMOS value from BIOS default table
<F7>	Load the Optimized Defaults
<F8>	Q-Flash utility
<F9>	System Information
<F10>	Save all the CMOS changes, only for Main Menu

GETTING HELP

   Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

   Status Page Setup Menu / Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc>.

The Main Menu (For example: BIOS Ver. : F9a)

Once you enter AMI BIOS CMOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. The Main Menu allows you to select from eight setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

AMIBIOS SIMPLE SETUP UTILITY - VERSION 2.00	
(C) 2001 American Megatrends, Inc. All Rights Reserved	
STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	HARDWARE MONITOR & MISC SETUP
CHIPSET FEATURES SETUP	SUPERVISOR PASSWORD
POWER MANAGEMENT SETUP	USER PASSWORD
PNP / PCI CONFIGURATION	IDE HDD AUTO DETECTION
LOAD FAIL-SAFE DEFAULTS	SAVE & EXIT SETUP
LOAD OPTIMIZED DEFAULTS	EXIT WITHOUT SAVING
ESC: Quit ↑↓←→: Select Item F5: Old Values F6: Fail-Safe Values	
F7: Optimized Values F8: Q-Flash Utility F10:Save & Exit	
Time, Date , Hard Disk Type...	

Figure 1: Main Menu

● **Standard CMOS Features**

   This setup page includes all the items in standard compatible BIOS.

● **BIOS Features Setup**

   This setup page includes all the adjustable items of AMI special enhanced features.

● **Chipset Features Setup**

   This setup page includes all the adjustable items of chipset special features.

● **Power Management Setup**

This setup page includes all the adjustable items of Green function features.

● **PNP/PCI Configurations**

This setup page includes all the adjustable configurations of PCI & PnP ISA resources.

● **Load Fail-Safe Defaults**

Load Fail-Safe Defaults option loads preset system parameter values to set the system in its most stable configurations.

● **Load Optimized Defaults**

Load Optimized Defaults option loads preset system parameter values to set the system in its highest performance configurations.

● **Integrated Peripherals**

This setup page includes all onboard peripherals.

● **Hardware Monitor & MISC Setup**

This setup page is auto detect fan and temperature status.

● **Set Supervisor Password**

Set Change or disable password. It allows you to limit access to the system and/or BIOS setup.

● **Set User Password**

Set Change or disable password. It allows you to limit access to the system.

● **IDE HDD Auto Detection**

Automatically configure hard disk parameters.

● **Save & Exit Setup**

Save CMOS value settings to CMOS and exit setup.

● **Exit Without Saving**

Abandon all CMOS value changes and exit setup.

Standard CMOS Features

AMIBIOS SETUP - STANDARD CMOS SETUP
(C) 2001 American Megatrends, Inc. All Rights Reserved

System Date : Jan 08 2002 Tue	
System Time : 14:44:35	
TYPE SIZE CYLS HEAD PRECOMP LANDZ SECTOR MODE	
Pri Master : Auto	
Pri Slave : Auto	
Sec Master : Auto	
Sec Slave : Auto	
Floppy Drive A : 1.44 MB 3$^{1/2}$	Base Memory : 640 Kb
Floppy Drive B : Not Installed	Other Memory : 384 Kb
	Extended Memory : 95 Mb
Virus Protection : Disabled	Total Memory : 96 Mb
Date is standard format	ESC : Exit
Month : Jan - Dec	↑↓ : Select Item
Day : 01- 31	PU / PD / + / - :Modify
Year : 1990 - 2099	(Shift) F2 : Color

Figure 2: Standard CMOS Setup

☞ **System Date**

The date format is <week>, <month>, <day>, <year>.

- ▸▸ Week   The week, from Sun to Sat, determined by the BIOS and is display only
- ▸▸ Month   The month, Jan. Through Dec.
- ▸▸ Day   The day, from 1 to 31 (or the maximum allowed in the month)
- ▸▸ Year   The year, from 1990 through 2099

☞ **System Time**

The times format in <hour> <minute> <second>. The time is calculated base on the 24-hour
military time clock. For example, 1 p.m. is 13:00:00.

☞ **Primary Master, Slave / Secondary Master, Slave**

The category identifies the types of hard disk from drive C to F that has been installed in the
computer. There are two types: auto type, and manual type. Manual type is user-definable; Auto
type which will automatically detect HDD type.

Note that the specifications of your drive must match with the drive table. The hard disk will not
work properly if you enter improper information for this category.

If you select User Type, related information will be asked to enter to the following items. Enter the
information directly from the keyboard and press <Enter>. Such information should be provided in
the documentation form your hard disk vendor or the system manufacturer.

▶▶SIZE	HDD Size
▶▶CYLS.	Number of cylinders
▶▶HEADS	number of heads
▶▶PRECOMP	write precomp
▶▶LANDZONE	Landing zone
▶▶SECTORS	number of sectors
▶▶MODE	Logical block addressing

If a hard disk has not been installed select NONE and press <Enter>.

☞ **Floppy Drive A / Drive B**

The category identifies the types of floppy disk drive A or drive B that has been installed in the
computer.

▶▶Not Installed	No floppy drive installed
▶▶1.2M, 5.25 in.	5.25 inch AT-type high-density drive; 1.2M byte capacity
	(3.5 inch when 3 Mode is Enabled).
▶▶720K, 3.5 in.	3.5 inch double-sided drive; 720K byte capacity
▶▶1.44M, 3.5 in.	3.5 inch double-sided drive; 1.44M byte capacity.
▶▶2.88M, 3.5 in.	3.5 inch double-sided drive; 2.88M byte capacity.

☞ **Virus Protection**

If it is set to enable, the category will flash on the screen when there is any attempt to write to the boot sector or partition table of the hard disk drive. The system will halt and the following error message will appear in the mean time. You can run anti-virus program to locate the problem.

    ▶▶Enabled   Activate automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table

    ▶▶Disabled   No warning message to appear when anything attempts to access the boot sector or hard disk partition table (Default Value)

☞ **Memory**

The category is display-only which is determined by POST (Power On Self Test) of the BIOS.

Base Memory

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system.

The value of the base memory is typically 512 K for systems with 512 K memory installed on the motherboard, or 640 K for systems with 640 K or more memory installed on the motherboard.

Other Memory

This refers to the memory located in the 640 K to 1024 K address space. This is memory that can be used for different applications.

DOS uses this area to load device drivers to keep as much base memory free for application programs. Most use for this area is Shadow RAM.

Extended Memory

The BIOS determines how much extended memory is present during the POST.

This is the amount of memory located above 1 MB in the CPU's memory address map.

BIOS Features Setup

```
                    AMIBIOS SETUP - BIOS FEATURES SETUP
              ( C ) 2001 American Megatrends, Inc. All Rights Reserved

  BIOS Flash Protection      : Auto
  1st Boot Device            : Floppy
  2nd Boot Device            : IDE-0
  3rd Boot Device            : CDROM
  Floppy Drive Seek          : Disabled
  BootUp Num-Lock            : On
  Password Check             : Setup          ESC: Quit          ↑↓←→: Select Item
  S.M.A.R.T. for Hard Disks  : Disabled       F1  : Help          PU/PD+/-/ : Modify
  Interrupt Mode             : APIC           F5  : Old  Values        (Shift)F2: Color
                                              F6  : Fail-Safe          F7:Optimized
                                              F8  : Q-Flash Utility
```

Figure 3: BIOS Feature Setup

☞ **BIOS Flash Protection**

This field lets you determine the states that flash BIOS.

▸ Auto BIOS enables flash write access automatically when updating BIOS data/ DMI/ESCD. (Default Value)

▸ Enabled During POST, DMI/ESCD would not be updated. But flash tools can update BIOS always.

☞ **1st / 2nd / 3rd Boot device**

▸ Floppy Select your boot device priority by Floppy.

▸ CDROM Select your boot device priority by CDROM.

▸ Disabled Disable this function.

▸ IDE-0~3 Select your boot device priority by IDE-0~3.

▸ Realtek Boot Select your boot device priority by Realtek Lan function.

☞ **Floppy Drive Seek**

During POST, BIOS will determine the floppy disk drive installed is 40 or 80 tracks. 360 K type is 40 tracks 720 K, 1.2 M and 1.44 M are all 80 tracks.

➧ Enabled   BIOS searches for floppy disk drive to determine it is 40 or 80 tracks. Note that BIOS can not tell from 720 K, 1.2 M or 1.44 M drive type as they are all 80 tracks.

➧ Disabled   BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360 K. (Default value)

☞ **Boot Up Num-Lock**

➧ On   Keypad is number keys. (Default value)

➧ Off   Keypad is arrow keys.

☞ **Password Check**

Please refer to the detail on P.55

➧ Always   The user must enter correct password in order to access the system and/or BIOS Setup.

➧ Setup   The user must enter correct password in order to access BIOS setup utility. (Default Value)

☞ **S.M.A.R.T. for HardDisks**

➧ Enabled   Enable HDD S.M.A.R.T. Capability.

➧ Disabled   Disable HDD S.M.A.R.T. Capability. (Default value)

☞ **Interrupt Mode**

➧ APIC   Through IOAPIC generate more IRQ for system use.(Default value)

➧ PIC   Use AT stantard IRQ controles to generate IRQ.

When you already have IOAPIC enable system and want to upgrade the system please note, since running an IOAPIC enabled OS (like Windows NT, Windows 2000, Windows XP...) system with none IOAPIC HW support will cause the system to hang. Following are some situations users might run into:

1.An IOAPIC enabled OS and change the BIOS setting from IOAPIC to PIC, this will cause your system to hang.

Chipset Features Setup

We would not suggest you change the chipset default setting unless you really need it.

```
┌─────────────────────────────────────────────────────────────────────────────┐
│              AMIBIOS SETUP - CHIPSET FEATURES SETUP                           │
│            ( C ) 2001 American Megatrends, Inc. All Rights Reserved           │
├─────────────────────────────────────────┬───────────────────────────────────┤
│ Configure SDRAM by SPD     :Enabled      │                                   │
│ SDRAM Frequency            :Auto         │                                   │
│ SDRAM CAS# Latency         :2.5          │                                   │
│ SDRAM Command Rate         :2T Command   │                                   │
│ AGP Mode                   :4X           │                                   │
│ AGP Comp. Driving          :Auto         │                                   │
│ Manual AGP Comp. Driving   :DA           │                                   │
│ AGP Fast Write             :Disabled     │                                   │
│ AGP Aperture Size          :64MB         │                                   │
│ AGP Read Synchronization   :Disabled     │                                   │
│ PCI Delay Transaction      :Disabled     ├───────────────────────────────────┤
│ USB Controller             :4 USB Ports  │ ESC: Quit          ↑↓←→: Select Item│
│ USB Legacy Support         :Disabled     │ F1  : Help       PU/PD+/-/ : Modify │
│ USB Port 64/60 Emulation   :Disabled     │ F5  : Old Values      (Shift)F2: Color│
│                                          │ F6  : Fail-Safe         F7:Optimized│
│                                          │ F8  : Q-Flash Utility               │
└─────────────────────────────────────────┴───────────────────────────────────┘
```

Figure 4: Chipset Features Setup

#These two items will be available when "Configure SDRAM by SPD" is set to Disabled.

☞ **Configure SDRAM by SPD**

▸Disabled   Disable Configure SDRAM by SPD.

▸Enabled   Enable Configure SDRAM by SPD. (Default Value)

☞ **SDRAM Frequency**

▸200MHz   Set SDRAM Frequency to 200MHz.

▸266MHz   Set SDRAM Frequency to 266MHz.

▸Auto   Set SDRAM Frequency to Auto. (Default Value)

☞ **SDRAM CAS # Latency**

▸2   For Fastest SDRAM DIMM module.

▸2.5   For Slower SDRAM DIMM module. (Default Value)

☞ **SDRAM Command Rate**

    ▸2T Command   Set SDRAM Command Rate to 2T Command. (Default Value)

    ▸1T Command   Set SDRAM Command Rate to 1T Command.

☞ **AGP Mode**

    ▸4X   Set AGP Mode to 4X. (Default Value)

    ▸1X   Set AGP Mode to 1X.

    ▸2X   Set AGP Mode to 2X.

☞ **AGP Comp. Driving**

    ▸Auto   Set AGP Comp. Driving to Auto. (Default Value)

    ▸Manual   Set AGP Comp. Driving to Manual.

  If AGP Comp. Driving is Manual.

  Manual AGP Comp. Driving :   00~FF

☞ **AGP Fast Write**

    ▸Disabled   Disable AGP Fast Write. (Default Value)

    ▸Enabled   Enable AGP Fast Write.

☞ **AGP Aperture Size**

    ▸4MB   Set AGP Aperture Size to 4MB.

    ▸8MB   Set AGP Aperture Size to 8 MB.

    ▸16MB   Set AGP Aperture Size to 16 MB.

    ▸32MB   Set AGP Aperture Size to 32 MB.

    ▸64MB   Set AGP Aperture Size to 64 MB. (Default Value)

    ▸128MB   Set AGP Aperture Size to 128 MB.

    ▸256MB   Set AGP Aperture Size to 256 MB.

☞ **AGP Read Synchronization**

    ▸Enabled   Enable AGP Read Synchronization.

    ▸Disabled   Disable AGP Read Synchronization. (Default Value)

☞ **PCIDelay Transaction**

    ▸Enabled   Enable PCI Delay Transaction.

    ▸Disabled   Disable PCI Delay Transaction.(Default Value)

☞ **USB Controller**

    ▸Disabled   Disable USB Controller function.

    ▸2USB Ports   Enable 2USB Ports.

    ▸4USB Ports   Enable 4USB Ports.

☞ **USB Legacy Support**

    ▸No Mice   Set USB Legacy Support Keyboard / Floppy.

    ▸All Device   Set USB Legacy Support Keyboard / Mouse /Floppy.

    ▸Disabled   Disable USB Legacy Support Function. (Default Value)

☞ **Port 64/60 Emulation**

    ▸Enabled   To use USB mouse under Win NT environment, set USB Legacy

                                   Support to KB/Mouse/FDDand USBPort 64/60 Emulation to enabled.

    ▸Disabled   Disable this Function. (Default Value)

Power Management Setup

AMIBIOS SETUP - POWER MANAGEMENT SETUP (C) 2001 American Megatrends, Inc. All Rights Reserved			
ACPI Standby State	:S1/POS	Resume On RTC Alarm	:Disabled
Power LED in S1 state	:Blinking	RTC Alarm Date	:15
USB Dev Wakeup From S3-S5	:Disabled	RTC Alarm Hour	:12
Suspend Time Out(Minute)	:Disabled	RTC Alarm Minute	:30
IRQ3	:Monitor	RTC Alarm Second	:30
IRQ 4	:Monitor		
IRQ 5	:Ignore		
IRQ 7	:Monitor		
IRQ 9	:Ignore		
IRQ 10	:Ignore		
IRQ 11	:Ignore		
IRQ 13	:Ignore		
IRQ 14	:Monitor		
IRQ 15	:Ignore		
Soft-off by Power Button	:Instant off		
AC Back Function	:Soft-Off	ESC: Quit	↑↓←→: Select Item
Modem Ring / Wake On Lan	:Enabled	F1 : Help	PU/PD+/-/ : Modify
PME Event Wake Up	:Enabled	F5 : Old Values	(Shift)F2: Color
Keyboard Wakeup From	:S1(Suspend)	F6 : Fail-Safe	F7:Optimized
PS/2 Mouse Wakeup From	:S1(Suspend)	F8 : Q-Flash Utility	

Figure 5: Power Management Setup

☞ **ACPI Standby State**

▸S1/POS   Set ACPI standby state is S1. (Default Value)

▸S3/STR   Set ACPI standby state is S3.

☞ **Power LED in S1 state**

▸Blinking   In standby mode(S1), power LED will blink. (Default Value)

▸Dual/Off   In standby mode(S1):

a. If use single color LED, power LED will turn off.

b. If use dual color LED, power LED will turn to another color.

☞ **USB Dev Wakeup From S3~S5**

USB Dev Wakeup From S3~S5 can be set when ACPI standby state set to S3/STR.

    ▸▸ Enabled   Enable USB Dev Wakeup From S3~S5.

    ▸▸ Disabled   Disable USB Dev Wakeup From S3~S5. (Default Value).

☞ **Suspend Time Out (Minute.)**

    ▸▸ Disabled   Disabled Suspend Time Out Function. (Default Value)

    ▸▸ 1   Enabled Suspend Time Out after 1min.

    ▸▸ 2   Enabled Suspend Time Out after 2min.

    ▸▸ 4   Enabled Suspend Time Out after 4min.

    ▸▸ 8   Enabled Suspend Time Out after 8min.

    ▸▸ 10   Enabled Suspend Time Out after 10min.

    ▸▸ 20   Enabled Suspend Time Out after 20min.

    ▸▸ 30   Enabled Suspend Time Out after 30min.

    ▸▸ 40   Enabled Suspend Time Out after 40min.

    ▸▸ 50   Enabled Suspend Time Out after 50min.

    ▸▸ 60   Enabled Suspend Time Out after 60min.

☞ **IRQ 3~IRQ15**

    ▸▸ Ignore   Ignore IRQ3 ~IRQ15.

    ▸▸ Monitor   Monitor IRQ3~IRQ15.

☞ **Soft-off by Power Button**

    ▸▸ Instant-off   Soft switch ON/OFF for POWER ON/OFF. (Default Value)

    ▸▸ Suspend   Soft switch ON/OFF for suspend.

☞ **AC Back Function**

    ▸▸ Soft-Off   When AC-power back to the system, the system will be in "Soft-Off" state.

                    (Default Value)

    ▸▸ Full-On   When AC-power back to the system, the system will be in "Full-On" state.

    ▸▸ Memory   When AC-power back to the system, the system will return to the Last state

                    before AC-power off.

☞ **Modem Ring /Wake On LAN**

    ▸▸ Disabled   Disabled Resume Modem Ring / Wake On LAN.

    ▸▸ Enabled   Enabled Resume Modem Ring / Wake On LAN. (Default Value)

☞ **PME Event Wake Up**

    ▸▸ Disabled   Disable PME Event Wake Up.

    ▸▸ Enabled   Enabled PME Event Wake Up. (Default Value)

☞ **Keyboard Wakeup From**

    ▸▸ S1(Suspend) Keyboard is able to Wakeup the system from S1(Suspend) state.

                      (Default value)

    ▸▸ S1/S3   Keyboard is able to Wakeup the system from S1/S3 state.

    ▸▸ S1/S3/S4/S5 Keyboard is able to Wakeup the system from S1/S3/S4/S5 state.

☞ **PS/2 Wakeup From**

    ▸▸ S1(Suspend) PS/2 Mouse is able to Wakeup the system from S1(Suspend) state.

                      (Default value)

    ▸▸ S1/S3   PS/2 Mouse is able to Wakeup the system from S1/S3 state.

    ▸▸ S1/S3/S4/S5 PS/2 Mouse is able to Wakeup the system from S1/S3/S4/S5 state.

☞ **Resume On RTC Alarm**

You can set "RTC Alarm Power On" item to enabled and key in Data/time to power on
system.

    ▸▸ Disabled   Disable this function. (Default Value)

    ▸▸ Enabled   Enable alarm function to POWER ON system.

    If RTC Alarm Lead To Power On is Enabled.

    RTC Alarm Date: Everyday, 1~31

    RTC Alarm Hour: 0~23

    RTC Alarm Minute : 0~59

    RTC Alarm Second: 0~59

PNP/PCI Configuration

```
                AMIBIOS SETUP - PNP/PCI CONFIGURATION
          ( C ) 2001 American Megatrends, Inc. All Rights Reserved

  OnChip VGA Frame Buffer      : 32MB
  VGA Boot From                : AGP
  PCI Slot 1 IRQ Priority      : Auto
  PCI Slot 2 IRQ Priority      : Auto
  PCI Slot 3 IRQ Priority      : Auto
  Realtek LAN ROM initial      : Yes

                                         ESC: Quit          ↑↓←→: Select Item
                                         F1  : Help            PU/PD/+/- : Modify
                                         F5  : Old  Values   (Shift)F2: Color
                                         F6  : Fail-Safe     F7  : Optimized
                                         F8  : Q-Flash Utility
```

Figure 6: PNP/PCI Configuration

☞ OnChip VGA Frame Buffer

▸8MB   Set OnChip VGA Frame Buffer to 8MB.

▸16MB   Set OnChip VGA Frame Buffer to 16MB.

▸32MB   Set OnChip VGA Frame Buffer to 32MB.(Default Value)

▸None   Disable this function.

☞ VGA Boot From

▸AGP   Set VGA Boot from AGP VGA Card. (Default Value)

▸PCI   Set VGA Boot from PCI VGA Card.

) **PCI Slot1, 2, 3 IRQ Priority**

    ▸▸Auto   The system will reserved a free IRQ for PCI slot 1, 2, 3 device. (Default Value)

    ▸▸3   The system will reserved IRQ3 for PCI slot 1, 2, 3 device if no legacy
                            ISA device using IRQ3.

    ▸▸4   The system will reserved IRQ4 for PCI slot 1, 2, 3 device if no legacy
                            ISA device using IRQ4.

    ▸▸5   The system will reserved IRQ5 for PCI slot 1, 2, 3 device if no legacy
                            ISA device using IRQ5.

    ▸▸7   The system will reserved IRQ7 for PCI slot 1, 2, 3 device if no legacy ISA
                            device using IRQ7.

    ▸▸9   The system will reserved IRQ9 for PCI slot 1, 2, 3 device if no legacy ISA
                            device using IRQ9.

    ▸▸10   The system will reserved IRQ10 for PCI slot 1, 2, 3 device if no legacy
                            ISA device using IRQ10.

    ▸▸11   The system will reserved IRQ11 for PCI slot 1, 2, 3 device if no legacy
                            ISA device using IRQ11.

) **Realtek LAN ROM initial**

    ▸▸Yes   Enabled Realtek LAN ROM initial. (Default Value)

    ▸▸No   Disabled Realtek LAN ROM initial.

Load Fail-Safe Defaults

```
              AMIBIOS SIMPLE SETUP UTILITY - VERSION 2.00
            (C) 2001 American Megatrends, Inc. All Rights Reserved
─────────────────────────────────────────────────────────────────
 STANDARD CMOS SETUP              INTEGRATED PERIPHERALS
 BIOS FEATURES SETUP              HARDWARE MONITOR & MISC SETUP
 CHIPSET FEATURES SETUP           SUPERVISOR PASSWORD
 POWER MANAGE┌──────────────────────────────────────┐
 PNP / PCI CONFI│   Load Fail-Safe Defaults? (Y/N)?N  │
 LOAD FAIL-SAFE DEFAULTS          SAVE & EXIT SETUP
 LOAD OPTIMIZED DEFAULTS          EXIT WITHOUT SAVING
─────────────────────────────────────────────────────────────────
 ESC: Quit      ↑↓←→: Select Item   F5: Old Values   F6: Fail-Safe Values
 F7: Optimized Values        F8: Q-Flash Utility       F10:Save & Exit
                      Load Fail-Safe Defaults
```

Figure 7: Load Fail-Safe Defaults

☞ **Load Fail-Safe Defaults**

Fail-Safe defaults contain the most appropriate system parameter values of to configure
the system to achieve maximum stability.

Load Optimized Defaults

```
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STANDARD CMOS SETUP              INTEGRATED PERIPHERALS
BIOS FEATURES SETUP              HARDWARE MONITOR & MISC SETUP
CHIPSET FEATURES SETUP           SUPERVISOR PASSWORD
POWER MANAGE
                    Load Optimized Defaults? (Y/N)?N
PNP / PCI CONFI
LOAD FAIL-SAFE DEFAULTS          SAVE & EXIT SETUP
LOAD OPTIMIZED DEFAULTS          EXIT WITHOUT SAVING

ESC: Quit        ↑↓←→: Select Item   F5: Old Values      F6: Fail-Safe Values
F7: Optimized Values          F8: Q-Flash Utility          F10:Save & Exit
                      Load Optimized Defaults
```

Figure 8: Load Optimized Defaults

☞ **Load Optimized Defaults**

Optimized defaults contain the most appropriate system parameter values to configure
the system to achieve maximum performance.

Integrated Peripherals

AMIBIOS SETUP - INTEGRATED PERIPHERALS	
(C) 2001 American Megatrends, Inc. All Rights Reserved	
OnBoard IDE :Both	
IDE1 Conductor Cable :Auto	
IDE2 Conductor Cable :Auto	
OnBoard FDC :Auto	
OnBoard Serial Port 1 :Auto	
OnBoard Serial Port 2 :Auto	
Serial Port2 Mode :Normal	
OnBoard Parallel Port :Auto	
Parallel Port Mode :ECP	
Parallel Port IRQ :Auto	
Parallel Port DMA :Auto	
OnBoard MIDI Port :300	
MIDI Port IRQ :5	
OnBoard Game Port :201	
OnBoard AC'97 Audio :Auto	ESC : Quit ↑↓→←: Select Item
OnBoard Lan Chip :Enabled	F1 : Help PU/PD+/-/ : Modify
	F5 : Old Values (Shift)F2: Color
	F6 : Fail-Safe F7:Optimized
	F8 : Q-Flash Utility

Figure 9: Integrated Peripherals

☞ **OnBoard IDE**

    ▸▸ Disabled   Disabled OnBoard IDE

    ▸▸ Both   Set OnBoard IDE is Both (Default Value).

    ▸▸ Primary   Set OnBoard IDE is Primary

    ▸▸ Secondary   Set OnBoard IDE is Secondary

☞ **IDE1 Conductor Cable**

    ▸▸ Auto   Will be automatically detected by BIOS. (Default Value)

    ▸▸ ATA66/100   Set IDE1 Conductor Cable to ATA66/100 (Please make sure your IDE device and cable is compatible with ATA66/100).

    ▸▸ ATA33   Set IDE1 Conductor Cable to ATA33 (Please make sure your IDE device and cable is compatible with ATA33).

☞ **IDE2 Conductor Cable**

▸ Auto	Will be automatically detected by BIOS. (Default Value)
▸ ATA66/100	Set IDE2 Conductor Cable to ATA66/100 (Please make sure your IDE device and cable is compatible with ATA66/100).
▸ ATA33	Set IDE2 Conductor Cable to ATA33 (Please make sure your IDE device and cable is compatible with ATA33).

☞ **On Board FDC**

▸ Auto	Set On Board FDC is Auto (Default Value).
▸ Disabled	Disabled On Board FDC
▸ Enabled	Enabled On Board FDC

☞ **Onboard Serial Port 1**

▸ Auto	BIOS will automatically setup the port 1 address (Default Value).
▸ 3F8/COM1	Enable onboard Serial port 1 and address is 3F8.
▸ 2F8/COM2	Enable onboard Serial port 1 and address is 2F8.
▸ 3E8/COM3	Enable onboard Serial port 1 and address is 3E8.
▸ 2E8/COM4	Enable onboard Serial port 1 and address is 2E8.
▸ Disabled	Disable onboard Serial port 1.

☞ **Onboard Serial Port 2**

▸ Auto	BIOS will automatically setup the port 2 address (Default Value).
▸ 3F8/COM1	Enable onboard Serial port 2 and address is 3F8.
▸ 2F8/COM2	Enable onboard Serial port 2 and address is 2F8.
▸ 3E8/COM3	Enable onboard Serial port 2 and address is 3E8.
▸ 2E8/COM4	Enable onboard Serial port 2 and address is 2E8.
▸ Disabled	Disable onboard Serial port 2.

☞ **Serial Port 2 Mode**

▸ Normal	Normal operation. (Default Value)
▸ IrDA	Onboard I/O chip supports IrDA.
▸ ASKIR	Onboard I/O chip supports ASKIR.

☞ **OnBoard Parallel port**

    ➤ 378   Enable On Board LPT port and address is 378.

    ➤ 278   Enable On Board LPT port and address is 278.

    ➤ 3BC   Enable On Board LPT port and address is 3BC.

    ➤ Auto   Set On Board LPT port is Auto. (Default Value)

    ➤ Disabled   Disable On Board LPT port.

☞ **Parallel Port Mode**

    ➤ EPP   Using Parallel port as Enhanced Parallel Port.

    ➤ ECP   Using Parallel port as Extended Capabilities Port. (Default Value)

    ➤ Normal   Normal Operation.

    ➤ EPP+ECP   Using Parallel port as Enhanced Parallel Port & Extended Capabilities Port.

☞ **Parallel Port IRQ**

    ➤ 7   Set Parallel Port IRQ is 7.

    ➤ Auto   Set Auto to parallel Port IRQ DMA Channel. (Default Value)

    ➤ 5   Set Parallel Port IRQ is 5.

☞ **Parallel Port DMA**

    ➤ 3   Set Parallel Port DMA is 3.

    ➤ Auto   Set Auto to parallel port mode DMA Channel. (Default Value)

    ➤ 1   Set Parallel Port DMA is 1.

    ➤ 0   Set Parallel Port DMA is 0.

☞ **OnBoard MIDI Port**

    ➤ 300   Set 300 for MIDI Port. (Default Value)

    ➤ 310   Set 310 for MIDI Port .

    ➤ 320   Set 320 for MIDI Port.

    ➤ 330   Set 330 for MIDI Port.

    ➤ Disabled   Disabled this function.

☞ **Midi Port IRQ**

▶▶ 5   Set Midi Port IRQ to 5. (Default Value)

▶▶ 10   Set Midi Port IRQ to 10.

▶▶ 11   Set Midi Port IRQ to 11.

☞ **OnBoard Game Port**

▶▶ 201   Set 201 for Game Port.(Default Value)

▶▶ 209   Set 209 for Game Port.

▶▶ Disabled   Disabled this function.

☞ **OnBoard AC97 Audio**

▶▶ Auto   Enable auto detect onboard AC'97 audio. (Default v alue)

▶▶ Disabled   Disable this function.

☞ **Onboard Lan Chip ***

▶▶ Disabled   Disable this function.

▶▶ Enabled   Enable Onboard Lan Chip function. (Default Value)

" * " Not Supported 7VKML-DL (PCB VER:3.4)

Hardware Monitor & MISC Setup

AMIBIOS SETUP - HARDWARE MONITOR & MISC SETUP	
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Thermal Shut Down Temp. :110°C/230°F	
Reset Case Open Status : No	
Case Status : Open	
CPU Host Clock (Mhz) : 100	
CPU Temp. : 35°C/ 95°F	
System Temp. : 33°C/ 91°F	
CPU Fan Speed : 5273 RPM	
System Fan Speed : 0 RPM	
Vcore : +1.632V	
Vtt : +3.344V	
+3.300V : +3.296V	ESC: Quit ↑↓←→: Select Item
+5.000V : +5.080V	F1 : Help PU/PD+/-/ : Modify
+12.000V : +11.840V	F5 : Old Values (Shift)F2: Color
5V SB : +4.972V	F6 : Fail-Safe F7:Optimized
	F8 : Q-Flash Utility

Figure 10: Hardware Monitor & MISC Setup

☞ **Thermal Shut Down Temp.**

▶▶Disabled	Disabled this function.
▶▶80°C/176°F	Set Thermal Shut Down Temperature is 80°C/176°F.
▶▶85°C/185°F	Set Thermal Shut Down Temperature is 85°C/185°F.
▶▶90°C/194°F	Set Thermal Shut Down Temperature is 90°C/194°F.
▶▶95°C/203°F	Set Thermal Shut Down Temperature is 95°C/203°F.
▶▶100°C/212°F	Set Thermal Shut Down Temperature is 100°C/212°F.
▶▶105°C/221°F	Set Thermal Shut Down Temperature is 105°C/221°F.
▶▶110°C/230°F	Set Thermal Shut Down Temperature is 110°C/230°F.(Default Value)

☞ **Reset Case Open Status**

☞ **Case Status**

If the case is closed, "Case Opened" will show "No".

If the case have been opened, "Case Opened" will show "Yes".

If you want to reset "Case Opened" value, set "Reset Case Open Status" to

"Enabled" and save CMOS, your computer will restart.

☞ **CPU Host Clock (Mhz)**

▶ By Hw   Set CPU Host Clock by Hw. (Default Value)

▶ 133   Set CPU Host Clock to 133MHz~161MHz.

▶ 100   Set CPU Host Clock to 100Mhz~128MHz.

☞ **CPU / System Temp.**

▶ Detect CPU / System Temperature automatically.

☞ **CPU / System FAN Speed**

▶ Detect CPU / System Fan speed status automatically .

☞ **Current Voltage (V) VCORE / Vtt / +3.3V / +12V / +5V / 5VSB**

▶ Detect system's voltage status automatically.

Set Supervisor / User Password

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

```
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STANDARD CMOS SETUP              INTEGRATED PERIPHERALS
BIOS FEATURES SETUP              HARDWARE MONITOR & MISC SETUP
CHIPSET FEATURES SETUP           SUPERVISOR PASSWORD
POWER MANAGEMENT SETUP           USER PASSWORD
PNP / PCI CONFI      Enter new supervisor password:
LOAD FAIL-SAFE DEFAULTS          SAVE & EXIT SETUP
LOAD OPTIMIZED DEFAULTS          EXIT WITHOUT SAVING

ESC: Quit          ↑↓←→: Select Item    F5: Old Values      F6: Fail-Safe Values
F7: Optimized Values              F8: Q-Flash Utility           F10:Save & Exit
                    Change / Set / Disable Password
```

Figure 11: Password Setting

Type the password, up to six characters, and press <Enter>. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable password, just press <Enter> when you are prompted to enter password. A message "PASSWORD DISABLED" will appear to confirm the password being disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

The BIOS Setup program allows you to specify two separate passwords: a SUPERVISOR PASS WORD and a USER PASSWORD. When disabled, anyone may access all BIOS Setup program function. When enabled, the Supervisor password is required for entering the BIOS Setup program and having full configuration fields, the User password is required to access only basic items.

If you select "Always" at "Password Check" in BIOS Features Setup Menu, you will be prompted for the password every time the system is rebooted or any time you try to enter Setup Menu.

If you select "Setup" at "Password Check" in BIOS Features Setup Menu, you will be prompted only when you try to enter Setup.

IDE HDD Auto Detection

```
┌─────────────────────────────────────────────────────────────────────┐
│                  AMIBIOS SETUP - STANDARD CMOS SETUP                  │
│           ( C ) 2001 American Megatrends, Inc. All Rights Reserved    │
├─────────────────────────────────────────────────────────────────────┤
│ System Date  : Jan 08 2002 Tue                                        │
│ System Time  : 14:44:35                                               │
│               TYPE  SIZE  CYLS  HEAD  PRECOMP  LANDZ  SECTOR  MODE     │
│ Pri  Master :  Auto                                                   │
│ Pri  Slave  :  Auto                                                   │
│ Sec Master :  Auto                                                    │
│ Sec Slave  :  Auto                                                    │
│                                                                       │
│ Floppy Drive A : 1.44 MB 3¹ᐟ²     │  Base Memory  :  640 Kb           │
│ Floppy Drive B : Not Installed    │  Other Memory :  384 Kb           │
│                                   │  Extended Memory :  95 Mb         │
│ Virus Protection : Disabled       │  Total Memory :  96 Mb            │
├───────────────────────────────────┼───────────────────────────────────┤
│ Date is standard format           │  ESC : Exit                       │
│ Month : Jan - Dec                 │  ↑↓ : Select Item                 │
│ Day    : 01- 31                   │  PU / PD / + / - :Modify          │
│ Year   : 1990 - 2099              │  (Shift) F2 : Color               │
└───────────────────────────────────┴───────────────────────────────────┘
```

Figure 12: IDE HDD Auto Detection

Type "Y" will accept the H.D.D. parameter reported by BIOS.

Type "N" will keep the old H.D.D. parameter setup. If the hard disk cylinder number is over 1024, then the user can select LBA mode or LARGER mode for DOS partition larger than 528 MB.

Save & Exit Setup

```
┌──────────────────────────────────────────────────────────────────────┐
│            AMIBIOS SIMPLE SETUP UTILITY - VERSION 2.00                 │
│         (C) 2001 American Megatrends, Inc. All Rights Reserved         │
├────────────────────────────────────┬───────────────────────────────────┤
│ STANDARD CMOS SETUP                │ INTEGRATED PERIPHERALS            │
│ BIOS FEATURES SETUP                │ HARDWARE MONITOR & MISC SETUP     │
│ CHIPSET FEATURES SETUP             │ SUPERVISOR PASSWORD               │
│ POWER MANAGEMENT SETUP             │ USER PASSWORD                     │
│ PNP / PCI CONFI      Save to CMOS and EXIT (Y/N)? Y                    │
│ LOAD FAIL-SAFE DEFAULTS            │ SAVE & EXIT SETUP                 │
│ LOAD OPTIMIZED DEFAULTS            │ EXIT WITHOUT SAVING               │
├────────────────────────────────────┴───────────────────────────────────┤
│ ESC: Quit        ↑↓←→: Select Item    F5: Old Values   F6: Fail-Safe Values │
│ F7: Optimized Values          F8: Q-Flash Utility         F10:Save & Exit  │
├──────────────────────────────────────────────────────────────────────┤
│                   Save Data to CMOS & Exit SETUP                       │
└──────────────────────────────────────────────────────────────────────┘
```

Figure 13: Save & Exit Setup

Type "Y" will quit the Setup Utility and save the user setup value to RTC CMOS.

Type "N" will return to Setup Utility.

Exit Without Saving

```
┌─────────────────────────────────────────────────────────────────────┐
│           AMIBIOS SIMPLE SETUP UTILITY - VERSION 2.00                 │
│          (C) 2001 American Megatrends, Inc. All Rights Reserved       │
├─────────────────────────────────┬─────────────────────────────────────┤
│  STANDARD CMOS SETUP            │   INTEGRATED PERIPHERALS             │
│                                 │                                       │
│  BIOS FEATURES SETUP            │   HARDWARE MONITOR & MISC SETUP      │
│                                 │                                       │
│  CHIPSET FEATURES SETUP         │   SUPERVISOR PASSWORD                │
│                                 │                                       │
│  POWER MANAGE┌──────────────────────────────────────────┐             │
│              │        Quit Without Saving ( Y/N)? N     │             │
│  PNP / PCI CONF└──────────────────────────────────────────┘           │
│                                 │                                       │
│  LOAD FAIL-SAFE DEFAULTS        │   SAVE & EXIT SETUP                  │
│                                 │                                       │
│  LOAD OPTIMIZED DEFAULTS        │   EXIT WITHOUT SAVING                │
├─────────────────────────────────┴─────────────────────────────────────┤
│  ESC: Quit        ↑↓←→: Select Item    F5: Old Values   F6: Fail-Safe Values │
│  F7: Optimized Values          F8: Q-Flash Utility          F10:Save & Exit │
├─────────────────────────────────────────────────────────────────────┤
│                   Abandon all Datas & Exit SETUP                      │
└─────────────────────────────────────────────────────────────────────┘
```

Figure 14: Exit Without Saving

Type "Y" will quit the Setup Utility without saving to RTC CMOS.

Type "N" will return to Setup Utility.

_____

_____

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Chapter 4   Technical Reference

Block Diagram

AMD-K7™

CPU CLK (100/133MHz)

VGA Port

AGP 1X/2X/4X

AGPCLK(66MHz)

Host Bus 100/133MHz

100/133 MHz

2.5V DDR

VIA
KM266

HCLK (100/133MHz)

NPCLK (66MHz)

AGPCLK(66MHz)

3 PCI

RJ45 *

RTL8100 *

66 MHz

14.318 MHz

48 MHz

PCI BUS

VIA
VT8233A

ATA66/100
/133 IDE
Channels

4 USB
Ports

ITE 8705F

KB/Mouse

PS/2

PCICLK
(33MHz)

AC97
CODEC

COM Ports

LPT Port

Floppy

Game Port

MIC

LINE-IN

LINE-OUT
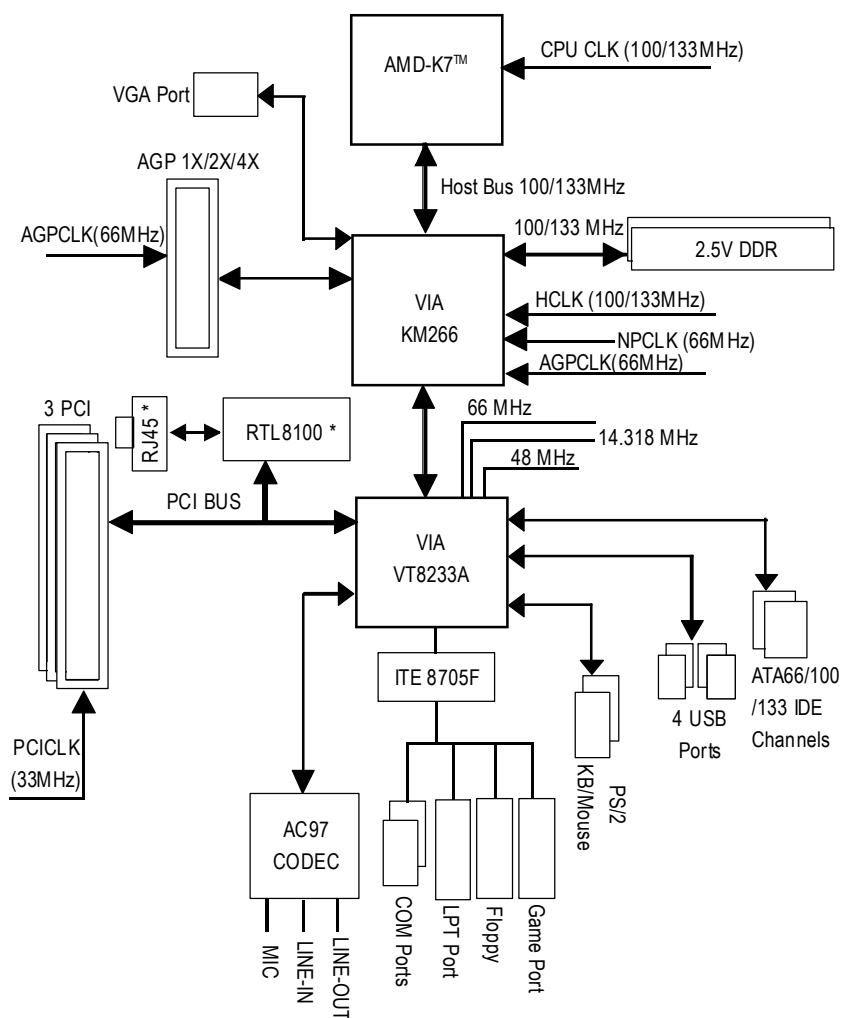
" * " Not Supported 7VKML-DL (PCB VER:3.4)

@ BIOS™ Introduction

Gigabyte announces @ BIOS
Windows BIOS live update utility

Have you ever updated BIOS by yourself? Or like many other people, you just know what BIOS is, but always hesitate to update it? Because you think updating newest BIOS is unnecessary and actually you don't know how to update it.

Maybe not like others, you are very experienced in BIOS updating and spend quite a lot of time to do it. But of course you don't like to do it too much. First, download different BIOS from website and then switch the operating system to DOS mode. Secondly, use different flash utility to update BIOS. The above process is not a interesting job. Besides, always be carefully to store the BIOS source code correctly in your disks as if you update the wrong BIOS, it will be a nightmare.

Certainly, you wonder why motherboard vendors could not just do something right to save your time and effort and save you from the lousy BIOS updating work? Here it comes! Now Gigabyte announces @BIOS—the first Windows BIOS live update utility. This is a smart BIOS update software. It could help you to download the BIOS from internet and update it. Not like the other BIOS update software, it's a Windows utility. With the help of "@BIOS', BIOS updating is no more than a click.

Besides, no matter which mainboard you are using, if it's a Gigabyte's product*, @BIOS help you to maintain the BIOS. This utility could detect your correct mainboard model and help you to choose the BIOS accordingly. It then downloads the BIOS from the nearest Gigabyte ftp site automatically. There are several different choices; you could use "Internet Update" to download and update your BIOS directly. Or you may want to keep a backup for your current BIOS, just choose "Save Current BIOS" to save it first. You make a wise choice to use Gigabyte, and @BIOS update your BIOS smartly. You are now worry free from updating wrong BIOS, and capable to maintain and manage your BIOS easily. Again, Gigabyte's innovative product erects a milestone in mainboard industries.

For such a wonderful software, how much it costs? Impossible! It's free! Now, if you buy a Gigabyte's motherboard, you could find this amazing software in the attached driver CD. But please remember, connected to internet at first, then you could have a internet BIOS update from your Gigabyte @BIOS.

Easy Tune™ 4 Introduction

Gigabyte announces *EasyTune™ 4*
Windows based Overclocking utility

EasyTune 4 carries on the heritage so as to pave the way for future generations.

Overclock" might be one of the most common issues in computer field. But have many users ever tried it? The answer is probably "no". Because "Overclock" is thought to be very difficult and includes a lot of technical know-how, sometimes "Overclock" is even considered as special skills found only in some enthusiasts. But as to the experts in "Overclock", what's the truth? They may spend quite a lot of time and money to study, try and use many different hardware or BIOS tools to do "Overclock". And even with these technologies, they still learn that it's quite a risk because the safety and stability of an "Overclock" system is unknown. Now everything is different because of a Windows based overclocking utility "EasyTune 4" --announced by Gigabyte. This windows based utility has totally changed the gaming rule of "Overclock". This is the first windows based overclocking utility is suitable for both normal and power users. Users can choose either "Easy Mode" or "Advanced Mode" for overclocking at their convenience. For users who choose "Easy Mode", they just need to click "Auto Optimize" to have autoed and immediate CPU overclocking. This software will then overdrive CPU speed automatically with the result being shown in the control panel. If users prefer "Overclock" by them, there is also another choice. Click "Advanced Mode" to enjoy "sport drive" class Overclocking user interface. "Advanced Mode", allows users to change the system bus / AGP / Memory working frequency in small increments to get ultimate system performance. It operates in coordination with Gigabyte motherboards. Besides, it is different from other traditional over-clocking methods, EasyTune 4 doesn't require users to change neither BIOS nor hardware switch / jumper setting; on the other hand, they can do "Overclock" at easy step . Therefore, this is a safer way for "Overclock" as nothing is changed on software or hardware. If user runs EasyTune 4 over system's limitation, the biggest lost is only to restart the computer again and the side effect is then well controlled. Moreover, if one well-performed system speed has been tested in EasyTune 4, user can "Save" this setting and "Load" it in next time. Obviously, Gigabyte EasyTune 4 has already turned the "Overclock" technology toward to a newer generation. This wonderful software is now free bundled in Gigabyte motherboard attached in driver CD. Users may make a test drive of "EasyTune 4" to find out more amazing features by themselves.

*Some Gigabyte products are not fully supported by EasyTune 4. Please find the products supported list in the web site.

*Any "Overclocking action" is at user's risk, Gigabyte Technology will not be responsible for any damage or instability to your processor, motherboard, or any other components.

Q-Flash Utility Introduction

A. What is Q-Flash Utility?

Q-Flash utility is a pre-O.S. BIOS flash utility enables users to update its BIOS within BIOS mode, no more fooling around any OS.

B. How to use Q-Flash?

a. After power on the computer, pressing <Del> immediately during POST (Power On Self Test) it will allow you to enter AMI BIOS CMOS SETUP, then press <F8> to enter Flash utility.

```
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STANDARD CMOS SETUP                    INTEGRATED PERIPHERALS

BIOS FEATURES SETUP                    HARDWARE MONITOR & MISC SETUP

CHIPSET FEATURES SETUP                 SUPERVISOR PASSWORD

POWER MANAGEMENT SETUP                 USER PASSWORD

PNP / PCI CONFIGU    ENTER BIOS FLASH UTILITY (Y/N)? Y

LOAD FAIL-SAFE DEFAULTS                SAVE & EXIT SETUP

LOAD OPTIMIZED DEFAULTS                EXIT WITHOUT SAVING

ESC: Quit        ↑↓←→: Select Item    F5: Old Values      F6: Fail-Safe Values
F7: Optimized Values        F8: Q-Flash Utility              F10:Save & Exit
                    Time, Date , Hard Disk Type…
```

b. Q-Flash Utility

```
                        Q-Flash Utility

Flash ROM Type..........................................SST 39SF020      256K

                        Load BIOS from Floppy
                        Save BIOS to Floppy

    Enter: Run        ↑↓: Move        ESC: Reset        F10: Power Off
```

Load BIOS From Floppy

🖊 In the A:drive, insert the "BIOS" diskette, then Press Enter to Run.

```
─────────────── 1 File(s) found ───────────────
▶ XXXX.XX                                      256K

  Total Size: 1.39M                  Free Size: 1.14M
  F5:Refresh                    DEL:Delete
```

Where XXXX.XX is name of the BIOS file.

🖊 Press Enter to Run.

```
        Are you sure to update BIOS?
        [Enter] to contiune Or [ESC] ot abort...
```

🖊 Press Enter to Run.

```
        !! COPY BIOS Completed -Pass !!
        Please press any key to continue
```

Congratulation! You have completed the flashed and now can restart system.

C. BIOS Flash Procedure

We use GA-7VTX motherboard and Flash841 BIOS flash utility as example.

Please flash the BIOS according to the following procedures if you are now under the DOS mode.

Flash BIOS Procedure:

STEP 1:

(1) Please make sure you have set "Auto" for BIOS Feature Setup (BIOS Flash Protection).

(2) Please make sure your system has installed the extraction utility such as winzip or pkunzip.

Firstly you have to install the extraction utility such as winzip or pkunzip for unzip the files. Both of these utilities are available on many shareware download pages like http://www.shareware.cnet. com

STEP 2: Make a DOS boot diskette. (See example: Windows 98 O.S.)

Beware: Windows ME/2000 are not allowed to make a DOS boot diskette.

(1) With an available floppy disk in the floppy drive. Please leave the diskette "UN-write protected" type. Double click the "My Computer" icon from Desktop, then click "3.5 diskette (A)" and right click to select "Format (M)"
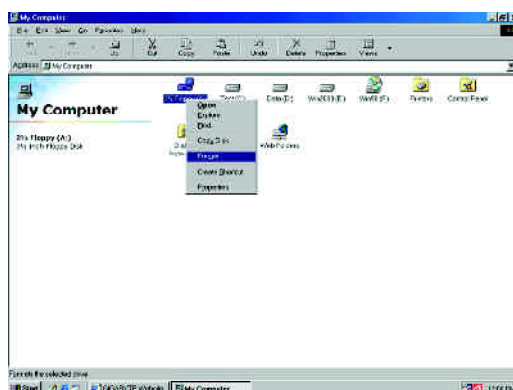
(2) Select the "Quick (erase)" for Format Type, and pick both "Display summary when finished" and "Copy system files", after that press "Start". That will format the floppy and transfer the needed system files to it.
Beware: This procedure will erase all the prior data on that floppy, so please proceed accordingly.
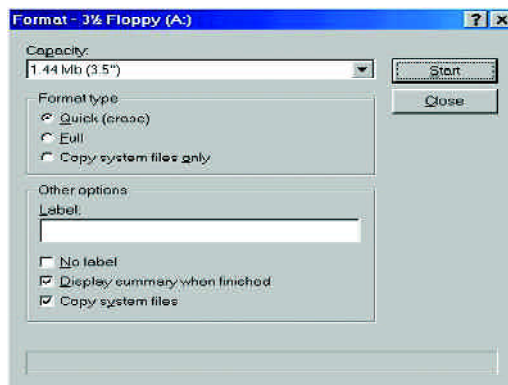
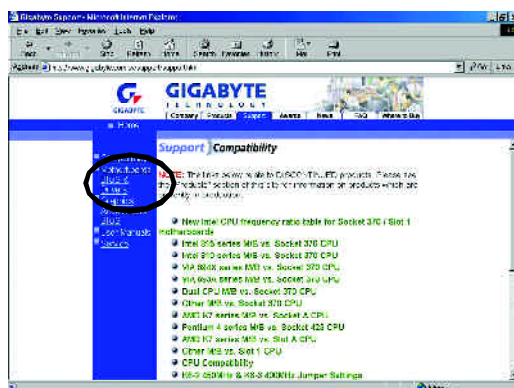(3) After the floppy has been formatted completely, please press "Close".
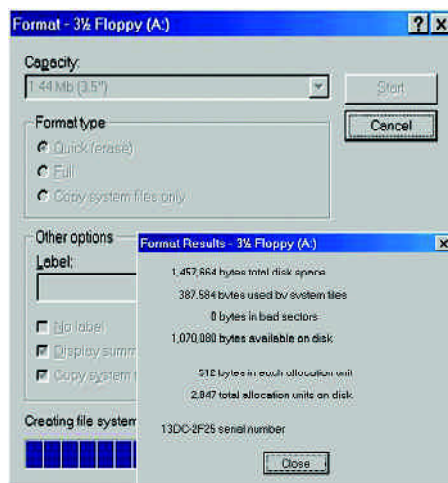
STEP 3: Download BIOS and BIOS utility program.
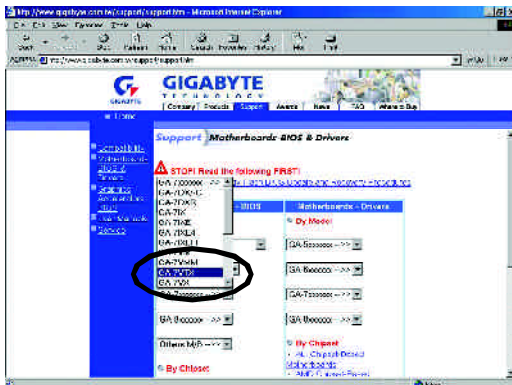
(1) Please go to Gigabyte website http://www.gigabyte.com.tw/index.html, and click "Support".

(2) From Support zone, click the "Motherboards BIOS & Drivers".

(3) We use GA-7VTX motherboard as example. Please select GA-7VTX by Model or Chipset optional menu to obtain BIOS flash files.


(4) Select an appropriate BIOS version (For example: F4), and click to download the file. It will pop up a file download screen, then select the "Open this file from its current location" and press "OK".
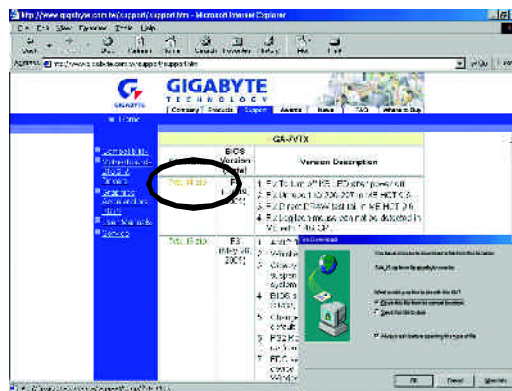
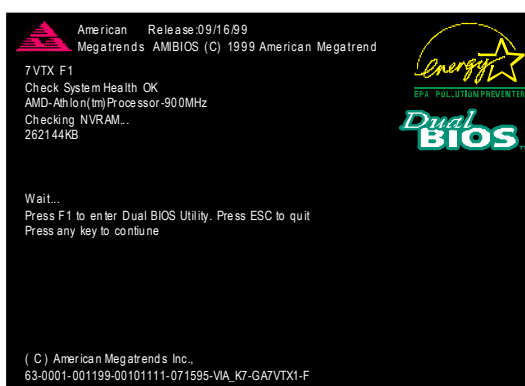(5) At this time the screen shows the following picture, please click "Extract" button to unzip the files.
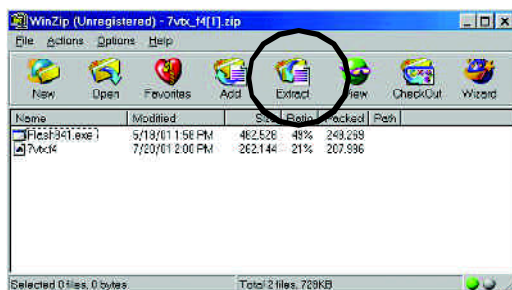
(6) Please extract the download files into the clean bootable floppy disk A mentioned in STEP 2, and press "Extract".
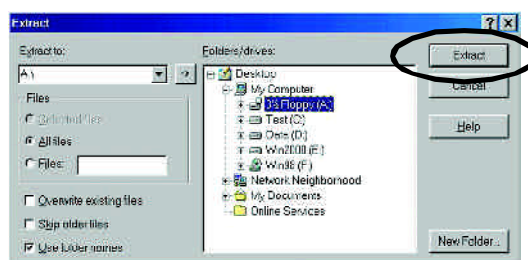
STEP 4: Make sure the system will boot from the floppy disk.

(1) Insert the floppy disk (contains bootable program and unzip file) into the floppy drive A. Then, restart the system. The system will boot from the floppy disk. Please press <DEL> key to enter BIOS setup main menu when system is bootup.


```
          American    Release:09/16/99
          Megatrends  AMIBIOS (C) 1999 American Megatrend

7VTX F1
Check System Health  OK
AMD-Athlon(tm)Processor-900MHz
Checking NVRAM...
262144KB



Wait...
Press F1 to enter Dual BIOS Utility. Press ESC to quit
Press any key to contiune




( C ) American Megatrends Inc.,
63-0001-001199-00101111-071595-VIA_K7-GA7VTX1-F
```

(2) Once you enter the BIOS setup utility, the main menu will appear on the screen. Use the arrows to highlight the item "BIOS FEATURES SETUP".

AMIBIOS SIMPLE SETUP UTILITY - VERSION 1.24b	
(C) 1999 American Megatrends, Inc. All Rights Reserved	
STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	HARDWARE MONITOR & MISC SETUP
CHIPSET FEATURES SETUP	SUPERVISOR PASSWORD
POWER MANAGEMENT SETUP	USER PASSWORD
PNP / PCI CONFIGURATION	IDE HDD AUTO DETECTION
LOAD BIOS DEFAULTS	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING
ESC: Quit ↑↓←→ : Select Item (Shift)F2 : Change Color F5: Old Values	
F6: Load BIOS Defaults F7: Load Setup Defaults F10:Save & Exit	
Time, Date , Hard Disk Type...	

English

(3) Press "Enter" to enter "BIOS FEATURES SETUP" menu. Use the arrows to highlight the item "1st Boot Device", and then use the "Page Up" or "Page Down" keys to select "Floppy".

```
                    AMIBIOS SETUP - BIOS FEATURES SETUP
                ( C ) 2001 American Megatrends, Inc. All Rights Reserved

1st Boot Device              : Floppy
2nd Boot Device              : IDE-0
3rd Boot Device              : CDROM
S.M.A.R.T. for Hard Disks    : Disabled
BootUp Num-Lock              : On          ESC: Quit          ↑↓←→: Select Item
Floppy Drive Seek            : Disabled    F1  : Help         PU/PD/+/- : Modify
Password Check               : Setup       F5  : Old  Values  (Shift)F2: Color
                                           F6  : Load BIOS Defaults
                                           F7  : Load Setup Defaults
```

(4) Press "ESC" to go back to previous screen. Use the arrows to highlight the item "SAVE & EXIT SETUP" then press "Enter". System will ask "SAVE to CMOS and EXIT (Y/N)?" Press "Y" and "Enter" keys to confirm. Now the system will reboot automatically, the new BIOS setting will be taken effect next boot-up.

```
                  AMIBIOS SIMPLE SETUP UTILITY - VERSION 1.24b
                 (C) 2001 American Megatrends, Inc. All Rights Reserved

STANDARD CMOS SETUP                     INTEGRATED PERIPHERALS
BIOS FEATURES SETUP                     HARDWARE MONITOR & MISC SETUP
CHIPSET FEATURES SETUP                  SUPERVISOR PASSWORD
POWER MANAGEMENT SETUP                  USER PASSWORD
PNP / PCI CONF         Save to CMOS and EXIT (Y/N)? Y      N
LOAD BIOS DEFAULTS                      SAVE & EXIT SETUP
LOAD SETUP DEFAULTS                     EXIT WITHOUT SAVING

ESC: Quit      ↑↓←→   : Select Item   (Shift)F2 : Change Color    F5: Old Values
F6: Load BIOS Defaults      F7: Load Setup Defaults      F10:Save & Exit

                      Save Data to CMOS & Exit SETUP
```

STEP 5: BIOS flashing.

(1) After the system boot from floppy disk, type "A:\> dir/w" and press "Enter" to check the entire files in floppy A. Then type the "BIOS flash utility" and "BIOS file" after A:\>. In this case you have to type "A:\> Flash841 7VTX.F4" and then press "Enter".

```
Starting Windows 98…

Microsoft(R) Windows98
  © Copyright Microsoft Corp 1981-1999

A:\> dir/w
  Volume in drive A has no label
Volume Serial Number is 16EB-353D
Directory of A:\
COMMAND.COM    7VTX.F4    FLASH841.EXE
        3 file(s)     838,954  bytes
        0 dir(s)     324,608  bytes free

A:\> Flash841 7VTX.F4
```

(2) Now screen appears the following Flash Utility main menu. Press "Enter", the highlighted item will locate on the model name of the right-upper screen. Right after that, press "Enter" to start BIOS Flash Utility.
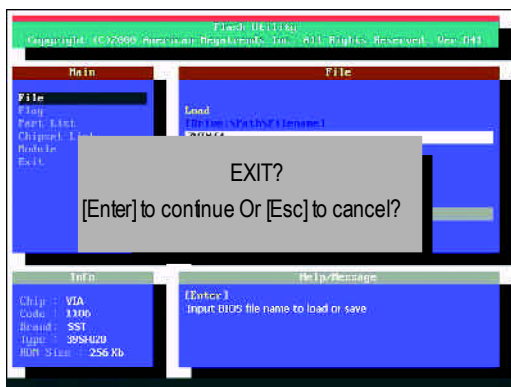

Technical Reference
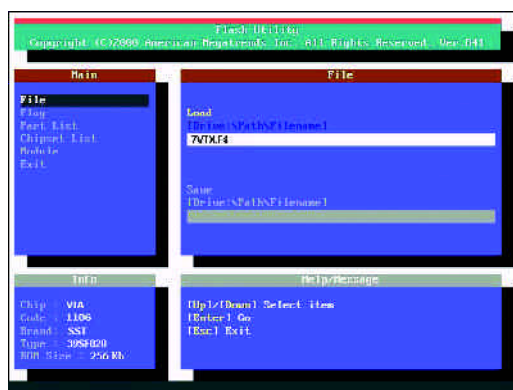
(3) It will pop up a screen and asks "Are you sure to flash the BIOS?" Press [Enter] to continue the
procedure, or press [ESC] to quit.
Beware: Please do not turn off the system while you are upgrading BIOS. It will render your BIOS
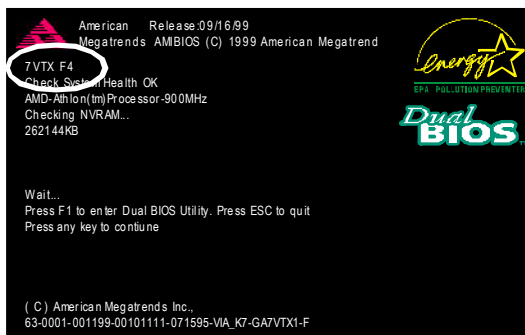corrupted and system totally inoperative.
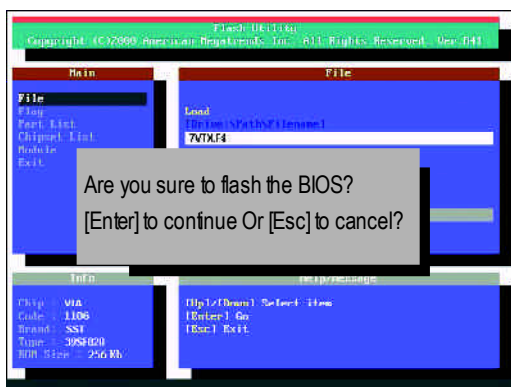
(4) The BIOS flash completed. Please press [ESC] to exit Flash Utility.

STEP 6: Load BIOS defaults.

Normally the system redetects all devices after BIOS has been upgraded. Therefore, we highly recommend reloading the BIOS defaults after BIOS has been upgraded. This important step resets everything after the flash.

(1) Take out the floppy diskette from floppy drive, and then restart the system. The bootup screen will indicate your motherboard model and current BIOS version.


```
        American    Release:09/16/99
        Megatrends  AMIBIOS (C) 1999 American Megatrend
     7VTX F4
     Check System Health OK
     AMD-Athlon(tm)Processor-900MHz
     Checking NVRAM...
     262144KB


     Wait...
     Press F1 to enter Dual BIOS Utility. Press ESC to quit
     Press any key to contiune



     ( C ) American Megatrends Inc.,
     63-0001-001199-00101111-071595-VIA_K7-GA7VTX1-F
```

(2) Don't forget to press <DEL> key to enter BIOS setup again when system is bootup. Use the arrows to highlight the item "LOAD SETUP DEFAULTS" then press "Enter". System will ask "Load Setup Defaults (Y/N)?" Press "Y" and "Enter" keys to confirm.

AMIBIOS SIMPLE SETUP UTILITY - VERSION 1.24b	
(C) 2001 American Megatrends, Inc. All Rights Reserved	
STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	HARDWARE MONITOR & MISC SETUP
CHIPSET FEATURES SETUP	SUPERVISOR PASSWORD
POWER MANAGEMENT SETUP	USER PASSWORD
PNP / PCI CONFI	Load Setup Defaults? (Y/N)?N
LOAD BIOS DEFAULTS	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING
ESC: Quit ↑↓←→ : Select Item (Shift)F2 : Change Color F5: Old Values	
F6: Load BIOS Defaults F7: Load Setup Defaults F10:Save & Exit	
Load Setup Defaults	

Technical Reference

English

(3) Use the arrows to highlight the item "SAVE & EXIT SETUP" and press "Enter". System will ask "SAVE to CMOS and EXIT (Y/N)?" Press "Y" and "Enter" keys to confirm. Now the system will reboot automatically, the new BIOS setting will be taken effect next boot-up.

```
AMIBIOS SIMPLE SETUP UTILITY - VERSION 1.24b
(C) 2001 American Megatrends, Inc. All Rights Reserved

STANDARD CMOS SETUP            INTEGRATED PERIPHERALS
BIOS FEATURES SETUP            HARDWARE MONITOR & MISC SETUP
CHIPSET FEATURES SETUP         SUPERVISOR PASSWORD
POWER MANAGEMENT SETUP         USER PASSWORD
PNP / PCI CONF    Save to CMOS and EXIT (Y/N)? Y
LOAD BIOS DEFAULTS             SAVE & EXIT SETUP
LOAD SETUP DEFAULTS            EXIT WITHOUT SAVING

ESC: Quit      ↑↓←→  : Select Item   (Shift)F2 : Change Color    F5: Old Values
F6: Load BIOS Defaults    F7: Load Setup Defaults    F10:Save & Exit

Save Data to CMOS & Exit SETUP
```
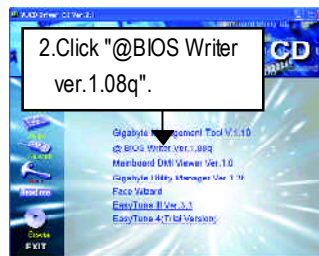
(4) Congratulate you have accomplished the BIOS flash procedure.

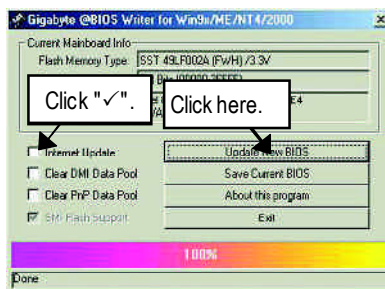GA-7VKML Series Motherboard   - 76 -

BIOS update procedure:

If your OS is Win9X, we recommend that you used Gigabyte @BIOS™ Program to flash BIOS.

Press "Tools" icon.

1.Click "Gigabyte Utilities".

(1)

2.Click "@BIOS Writer ver.1.08q".

(2)

Click "✓".   Click here.

(3)

Methods and steps:

I. Update BIOS through Internet

  a. Click "Internet Update" icon

  b. Click "Update New BIOS" icon

  c. Select @BIOS™ sever ("Gigabyte @BIOS™ sever 1 in Taiwan" and "Gigabyte @BIOS™ sever 2 in Taiwan" are available for now, the others will be completed soon)

  d. Select the exact model name on your motherboard

  e. System will automatically download and update the BIOS.

II. Update BIOS NOT through Internet:
   a. Do not click "Internet Update" icon
   b. Click "Update New BIOS"
   c. Please select "All Files" in dialog box while opening the old file.
   d. Please search for BIOS unzip file, downloading from internet or any other methods (such as: 7VKML.F9a).
   e. Complete update process following the instruction.

III. Save BIOS
   In the very beginning, there is "Save Current BIOS" icon shown in dialog box. It means to save the current BIOS version.

IV. Check out supported motherboard and Flash ROM:
   In the very beginning, there is "About this program" icon shown in dialog box. It can help you check out which kind of motherboard and which brand of Flash ROM are supported.
Note:
   a. In method I, if it shows two or more motherboard's model names to be selected, please make sure your motherboard's model name again. Selecting wrong model name will cause the system unbooted.
   b. In method II, be sure that motherboard's model name in BIOS unzip file are the same as your motherboard's. Otherwise, your system won't boot.
   c. In method I, if the BIOS file you need cannot be found in @BIOS™ server, please go onto Gigabyte's web site for downloading and updating it according to method II.
   d. Please note that any interruption during updating will cause system unbooted

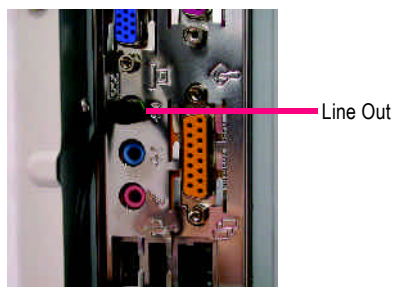# 2-/4-/6-Channel Audio Function Introduction

The installation of windows 98SE/2K/ME/XP is very simple. Please follow next step to install the function!

Stereo Speakers Connection and Settings:

We recommend that you use the speaker with amplifier to acquire the best sound effect if the stereo output is applied.
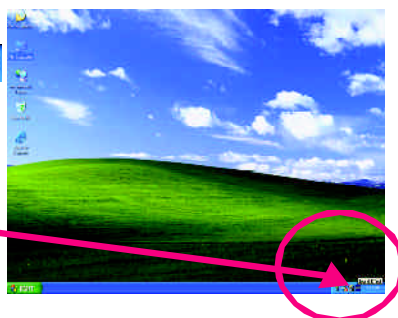
STEP 1:

Connect the stereo speakers or earphone to "Line Out".

Line Out

STEP 2 :

After installation of the audio driver, you 'll find an icon on the taskbar's status area. Click the audio icon "Sound Effect" from the windows tray at the bottom of the screen.
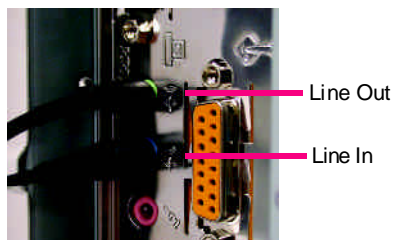
Sound Effect

10:41 AM

STEP 3:

Select "Speaker Configuration", and choose the "2 channels for stereo speakers out put".

2 channels mode for stereo speakers output

Technical Reference
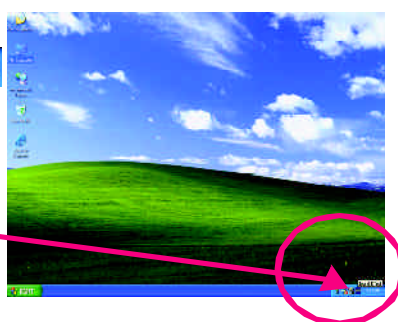
4 Channel Analog Audio Output Mode

STEP 1 :
Connect the front channels to "Line Out",
   the rear channels to "Line In".
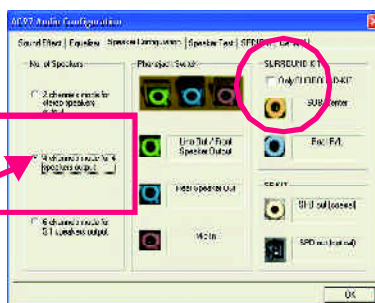
Line Out

Line In

STEP 2 :

After installation of the audio driver, you 'll find an

icon on the taskbar's status area. Click the audio
icon "Sound Effect" from the windows tray at the
bottom of the screen.

Sound Effect

10:41 AM

STEP 3 :
Select "Speaker Configuration", and choose the "4
   channels for 4 speakers out put".
Disable "Only SURROUND-KIT", and press
   "OK".

4 channels mode for 4
speakers output

When the "Environment settings" is "None", the
   sound would be performed as stereo mode
(2 channels output). Please select the other
   settings for 4 channels output.

4 Channel Analog Audio Output Mode

STEP 1 :

Connect the front channels to "Line Out",the rear
    channels to "Line In".

Line Out

Line In

STEP 2 :

After installation of the audio driver, you 'll find

icon on the taskbar's status area. Click the audio
icon "Sound Effect" from the windows tray at the
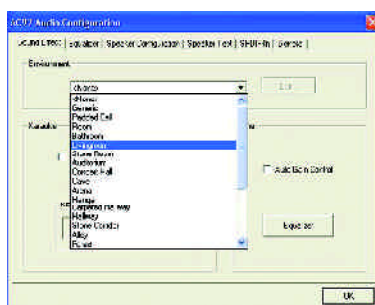bottom of the screen.

STEP 3 :

Select "Speaker Configuration", and choose the "4
    channels for 4 speakers out put".
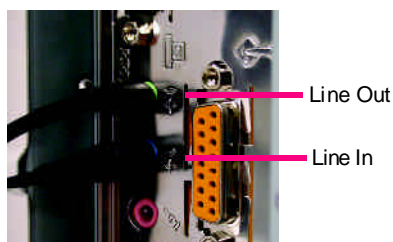Disable "Only SURROUND-KIT", and press
    "OK".
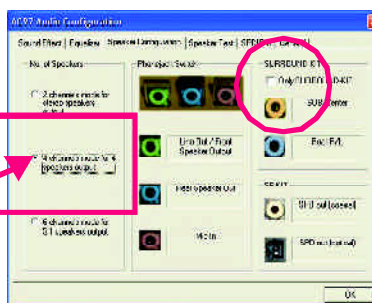
When the "Environment settings" is "None", the
    sound would be performed as stereo mode
(2 channels output). Please select the other
    settings for 4 channels output.
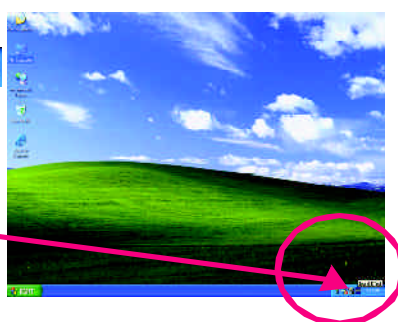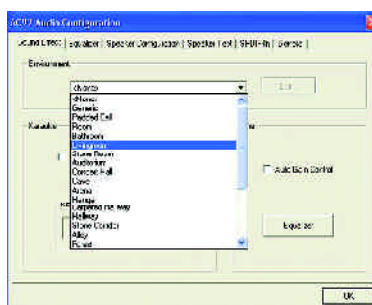
Advanced 6 Channel Analog Audio Output Mode (using Audio Combo Kit,Optional Device):

(Audio Combo Kit provides SPDIF output port : optical & coaxis and SURROUND-KIT : Rear R/L & Center/subwoofer)

SURROUND-KIT access analog output to rear channels and Center/Subwoofer channels. It is the best solution if you need 6 channel output, Line In and MIC at the same time. "SURROUND-KIT" is included in the GIGABYTE unique "Audio Combo Kit" as picture.

STEP 1 :

Insert the "Audio Combo Kit" in the back of the case ,and fix it with the screw.

STEP 2 :

Connect the "SURROUND-KIT" to SUR_CEN on the M/B.
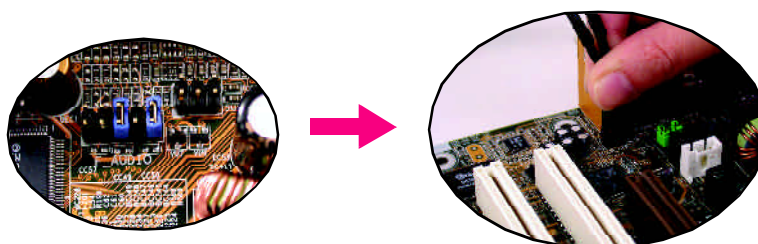
STEP 3 :

Connect the front channels to back audio panel's

"Line Out", the rear channels to SURROUND-KIT's

REAR R/L, and the Center/Subwoofer channels to

SURROUND-KIT's SUB CENTER.
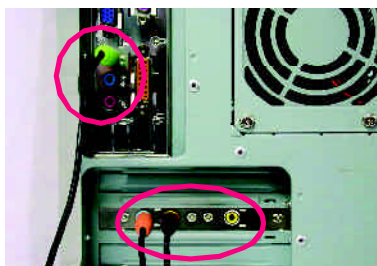
STEP 4 :

Click the audio icon "Sound Effect" from the win-

dows tray at the bottom of the screen.

Sound Effect

10:41 AM
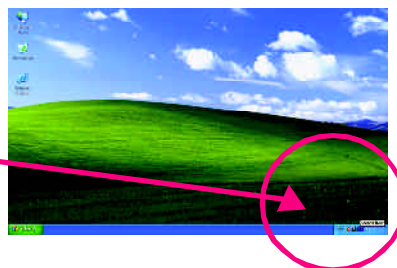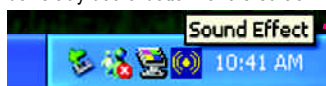
STEP 5 :

Select "Speaker Configuration", and choose the "6

channels for 5.1 speakers out put".

Enable "Only SURROUND-KIT" and press "OK".

SURROUND-KIT

☑ **Only SURROUND-KIT**
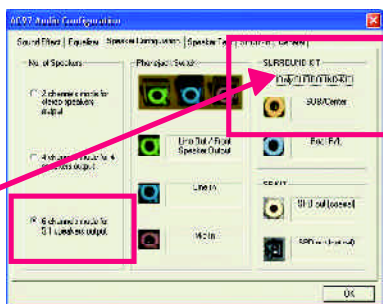
*Basic & Advanced 6 Channel Analog Audio Output Mode*Notes:

When the "Environment settings" is "None", the sound
would be performed as stereo mode(2 channels
output). Please select the other settings for 6 chan-
nels output.
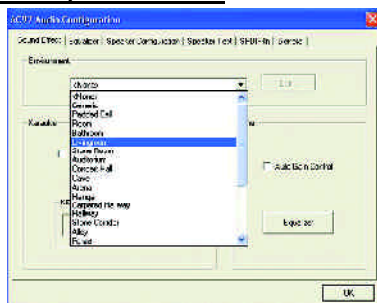
SPDIF Output Device (Optional Device)

A "SPDIF output" device is available on the motherboard. Cable with rear bracket is provided and could link to the "SPDIF output" connector (As picture.) For the further linkage to decoder, rear bracket provides coaxial cable and Fiber connecting port.
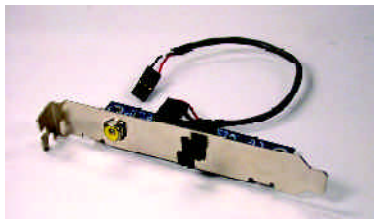
1. Connect the SPDIF output device to the rear bracket of PC, and fix it with screw.
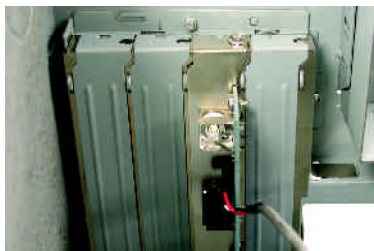
2. Connect SPDIF wire to the motherboard.
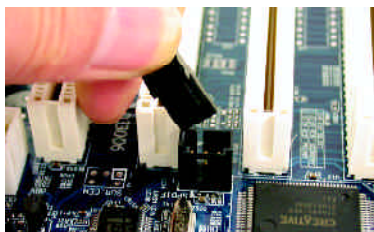
3. Connect co-axial or optical output to the SPDIF decoder.

Technical Reference

English

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Chapter 5   Appendix

Picture below are shown in Windows XP (VUCD driver version 2.1)

Appendix A: KM266 Chipset Drivers Installation

A. VIA 4 in 1 Service Pack Driver Utility:

Insert the driver CD-title that came with your motherboard into your CD-ROM driver, the driver CD-title will auto start and show the installation guide. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.

1.Click "VIA 4 in 1 Service Pack Driver " item.

(1)

2.Click "Next".

(2)

3.Click "Yes".

(3)

4.Click "Next".

(4)

5.Click "Next".

(5)

6.Click "Next".

(6)

7.Click "Next".

(7)

8.Click "Finish" to restart computer.

(8)
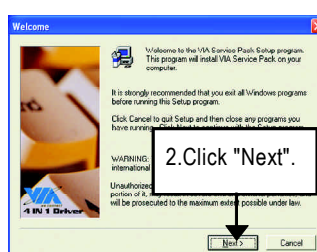
B. KM266 VGA Driver:

Insert the driver CD-title that came with your motherboard into your CD-ROM driver, the driver CD-title will auto start and show the installation guide. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.

1.Click "KM266 VGA Driver " item.

(1)

2. Click "Next".

(2)

3. Click "Next".

(3)

(4)

4. Click "Finish" to restart computer.

(5)

Appendix B: RealTek AC'97 Audio Driver

Insert the driver CD-title that came with your motherboard into your CD-ROM driver, the driver CD-title will auto start and show the installation guide. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.

1.Click "Realtek AC'97 Audio Driver" item.

Press "Audio" icon.

(1)

2.Click "Next".

(2)

3.Click "Next".

(3)

4.Click "Finish" to restart computer.
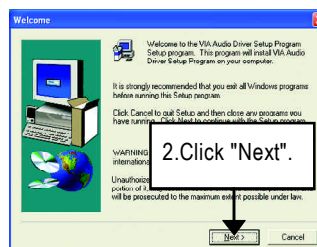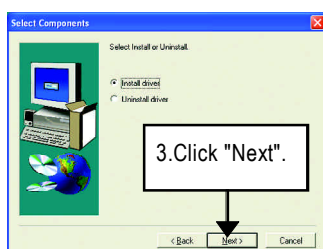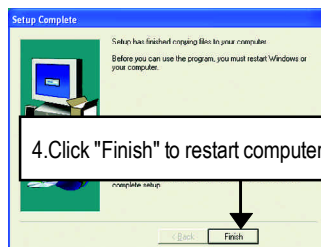
(4)

Appendix C: RealTek 8139/8100 LAN Driver *

Insert the driver CD-title that came with your motherboard into your CD-ROM driver, the driver CD-title will auto start and show the installation guide. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.

Press "Network" icon.

1.Click "RealTek 8139/8100 LAN Driver".

(1)

2.Click "OK" to restart computer.
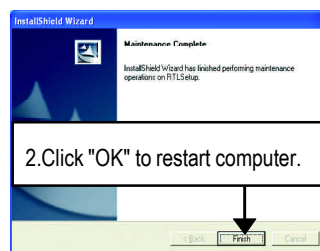
(2)

" * " Not Supported 7VKML-DL (PCB VER:3.4)

Appendix D: EasyTune 4 Utilities Installation

Insert the driver CD-title that came with your motherboard into your CD-ROM driver, the driver CD-title will auto start and show the installation guide. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.

Press "Tools" icon.

1.Click "Gigabyte Utilities".

(1)

2.Click "Easy Tune 4 (Trial Version)"

(2)

3.Click "Next".

(3)

4.Click "Next".

(4)

5.Click "Finish" to restart computer.
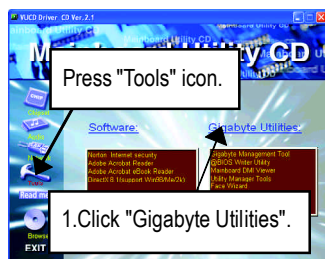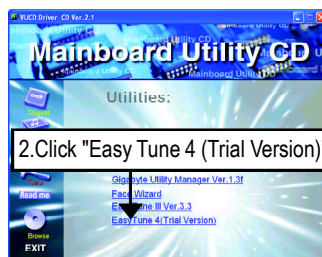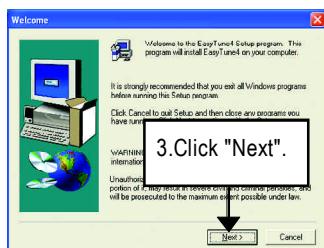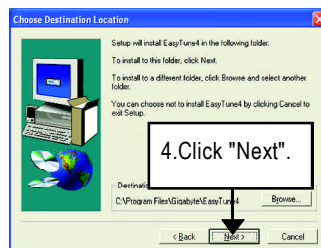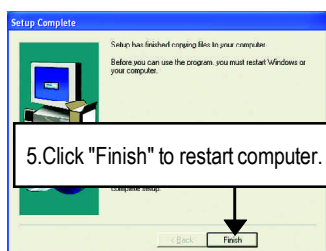
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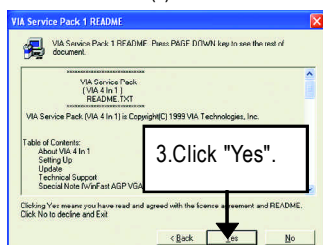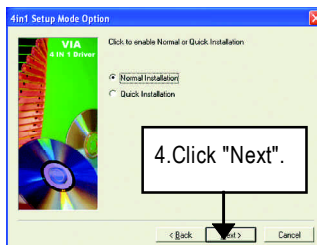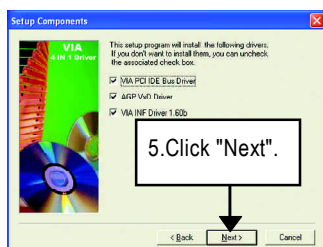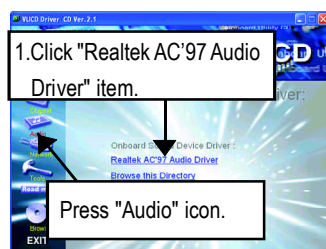## Appendix E: Acronyms

Acronyms	Meaning
ACPI	Advanced Configuration and Power Interface
APM	Advanced Power Management
AGP	Accelerated Graphics Port
AMR	Audio Modem Riser
ACR	Advanced Communications Riser
BIOS	Basic Input / Output System
CPU	Central Processing Unit
CMOS	Complementary Metal Oxide Semiconductor
CRIMM	Continuity RIMM
CNR	Communication and Networking Riser
DMA	Direct Memory Access
DMI	Desktop Management Interface
DIMM	Dual Inline Memory Module
DRM	Dual Retention Mechanism
DRAM	Dynamic Random Access Memory
DDR	Double Data Rate
ECP	Extended Capabilities Port
ESCD	Extended System Configuration Data
ECC	Error Checking and Correcting
EMC	Electromagnetic Compatibility
EPP	Enhanced Parallel Port
ESD	Electrostatic Discharge
FDD	Floppy Disk Device
FSB	Front Side Bus
HDD	Hard Disk Device
IDE	Integrated Dual Channel Enhanced
IRQ	Interrupt Request
I/O	Input / Output
IOAPIC	Input Output Advanced Programmable Input Controller
ISA	Industry Standard Architecture
LAN	Local Area Network

English

FAQ

Below is a collection of general asked questions. To check general asked questions based on a specific motherboard model, please log on to http://tw.giga-byte.com/faq/faq.htm

Question 1: I cannot see some options that were included in previous BIOS after updating BIOS. Why?
Answer: Some advanced options are hidden in new BIOS version. Please press Ctrl and F1 keys after entering BIOS menu and you will be able to see these options.

Questions 2: Why is the light of my keyboard/optical mouse still on after computer shuts down?
Answer: In some boards, a small amount of electricity is kept on standby after computer shuts down and that's why the light is still on.

Question 3: Why cannot I use all functions in EasyTune™ 4?
Answer: The availability of the listed functions in EasyTune™ 4 depends on the MB chipset. If the chipset doesn't support certain functions in EasyTune™ 4, these functions will be locked automatically and you will not be able to use them.

Question 4: Why do I fail to install RAID and ATA drivers under Win 2000 and XP on boards that support RAID function after I connect the boot HDD to IDE3 or IDE4 ?
Answer: First of all, you need to save some files in the CD-ROM to a floppy disk before installing drivers. You also need to go through some rather different steps in the installation process. Therefore, we suggest that you refer to the installation steps in the RAID manual at our website.
(Please download it at http://tw.giga-byte.com/support/user_pdf/raid_manual.pdf)

GA-7VKML Series Motherboard   - 92 -

Question 5: How do I clear CMOS?

Answer: If your board has a Clear CMOS jumper, please refer to the Clear CMOS steps in the manual. If your board doesn't have such jumper, you can take off the on-board battery to leak voltage to clear CMOS. Please refer to the steps below:

Steps:

1. Turn off power.
2. Disconnect the power cord from MB.
3. Take out the battery gently and put it aside for about 10 minutes (Or you can use a metal object to connect the positive and negative pins in the battery holder to make them short for one minute).
4. Re-insert the battery to the battery holder.
5. Connect power cord to MB again and turn on power.
6. Press Del to enter BIOS and load Fail-Safe Defaults.
7. Save changes and reboot the system.

Question 6: Why does system seem unstable after updating BIOS?

Answer: Please remember to load Fail-Safe Defaults (Or Load BIOS Defaults) after flashing BIOS. However, if the system instability still remains, please clear CMOS to solve the problem.

Question 7: Why do I still get a weak sound after turning up the speaker to the maximum volume?

Answer: Please make sure the speaker you are using is equipped with an internal amplifier. If not, please change another speaker with power/amplifier and try again later.

Question 8: How do I disable onboard VGA card in order to add an external VGA card?

Answer: Gigabyte motherboards will auto-detect the external VGA card after it is plugged in, so you don't need to change any setting manually to disable the onboard VGA.

Question 9: Why cannot I use the IDE 2?

Answer: Please refer to the user manual and check whether you have connected any cable that is not provided with the motherboard package to the USB Over Current pin in the Front USB Panel. If the cable is your own cable, please remove it from this pin and do not connect any of your own cables to it.

English

Question 10: Sometimes I hear different continuous beeps from computer after system boots up. What do these beeps usually stand for?

Answer: The beep codes below may help you identify the possible computer problems. However, they are only for reference purposes. The situations might differ from case to case.

→AMI BIOS Beep Codes
*Computer gives 1 short beep when system boots successfully.
*Except for beep code 8, these codes are always fatal.

    1 beep Refresh failure
    2 beeps Parity error
    3 beeps Base 64K memory failure
    4 beeps Timer not operational
    5 beeps Processor error
    6 beeps 8042 - gate A20 failure
    7 beeps Processor exception interrupt error
    8 beeps Display memory read/write failure
    9 beeps ROM checksum error
    10 beeps CMOS shutdown register read/write error
    11 beeps Cache memory bad

→ AWARD BIOS Beep Codes
    1 short: System boots successfully
    2 short: CMOS setting error
    1 long 1 short: DRAM or M/B error
    1 long 2 short: Monitor or display card error
    1 long 3 short: Keyboard error
    1 long 9 short: BIOS ROM error
    Continuous long beeps: DRAM error
    Continuous short beeps: Power error

Troubleshooting

If you encounter any trouble during boot up, please follow the troubleshooting procedures .

START

Turn off the power and unplug the AC power cable, then remove all of the add-on cards and cables from motherboard.

Please make sure motherboard & chassis are not short ? → Yes → Please isolate the short pin.

No

Failure has been excluded.

Please make sure all jumper settings (such as CPU system bus speed, frequency ratio, voltage and etc.) are set properly. → No → Make sure the jumper setting are correct.

Yes

Failure has been excluded.

Check if the CPU cooling fan attached to CPU properly. Is CPU cooling fan power connected to CPU_FAN properly? → No → Plug the CPU cooling fan power in the CPU fan connector. Plug in the AC power connector.

Yes

Failure has been excluded.

Check if the memory install properly into the DIMM slot. → No → Insert and push the memory module vertically into the DIMM slot.

Yes

Failure has been excluded.

Insert the VGA card. Then plug in ATX power cable and turn on the system.

A

A

Is memory LED on and CPU fan running? — No → The problem could be caused by power supply, CPU, memory or CPU/memory socket itself.

Yes

Failure has been excluded.

Check if there is display. — No → Perhaps your VGA card / VGA slot or monitor is defective.

Yes

Failure has been excluded.

Turn off the system. Reboot after keyboard and mouse have been plugged in.

Check if keyboard is working properly. — No → It is possible that your keyboard or keyboard connector is defective.

Yes

Press <Del> to enter BIOS setup. Choose "Load Optimized Defaults" and save then exit setup.

Failure has been excluded.

Turn off the system and re-connect the IDE cable. Check if the system can reboot successfully. — No → The problem was probably caused by the IDE device / connector or cable.

Yes

Reinstall Windows OS, and reinstall add-on cards and cables. Then try to reboot the system.

Failure has been excluded.

END

If the above procedure unable to solve your problem, please contact with your local retailer or national distributor for help. Or, you could submit your question to the service mail via Gigabyte website technical support zone
(http://www.gigabyte.com.tw). The appropriate response will be provided ASAP.

✂ **Technical Support/RMA Sheet**

Customer/Country:	Company:	Phone No.:
Contact Person:	E-mail Add. :	

Model name/Lot Number:	PCB revision:
BIOS version:	O.S./A.S.:

Hardware Configuration	Mfs.	Model name	Size:	Driver/Utility:
CPU				
Memory Brand				
Video Card				
Audio Card				
HDD				
CD-ROM / DVD-ROM				
Modem				
Network				
AMR / CNR				
Keyboard				
Mouse				
Power supply				
Other Device				

Problem Description:

_____

✂

_____

Acronyms

Acronyms	Meaning
ACPI	Advanced Configuration and Power Interface
APM	Advanced Power Management
AGP	Accelerated Graphics Port
AMR	Audio Modem Riser
ACR	Advanced Communications Riser
BIOS	Basic Input / Output System
CPU	Central Processing Unit
CMOS	Complementary Metal Oxide Semiconductor
CRIMM	Continuity RIMM
CNR	Communication and Networking Riser
DMA	Direct Memory Access
DMI	Desktop Management Interface
DIMM	Dual Inline Memory Module
DRM	Dual Retention Mechanism
DRAM	Dynamic Random Access Memory
DDR	Double Data Rate
ECP	Extended Capabilities Port
ESCD	Extended System Configuration Data
ECC	Error Checking and Correcting
EMC	Electromagnetic Compatibility
EPP	Enhanced Parallel Port
ESD	Electrostatic Discharge
FDD	Floppy Disk Device
FSB	Front Side Bus
HDD	Hard Disk Device
IDE	Integrated Dual Channel Enhanced
IRQ	Interrupt Request

to be continued......

Acronyms	Meaning
IOAPIC	Input Output Advanced Programmable Input Controller
ISA	Industry Standard Architecture
LAN	Local Area Network
I/O	Input / Output
LBA	Logical Block Addressing
LED	Light Emitting Diode
MHz	Megahertz
MIDI	Musical Instrument Digital Interface
MTH	Memory Translator Hub
MPT	Memory Protocol Translator
NIC	Network Interface Card
OS	Operating System
OEM	Original Equipment Manufacturer
PAC	PCI A.G.P. Controller
POST	Power-On Self Test
PCI	Peripheral Component Interconnect
RIMM	Rambus in-line Memory Module
SCI	Special Circumstance Instructions
SECC	Single Edge Contact Cartridge
SRAM	Static Random Access Memory

MEMO
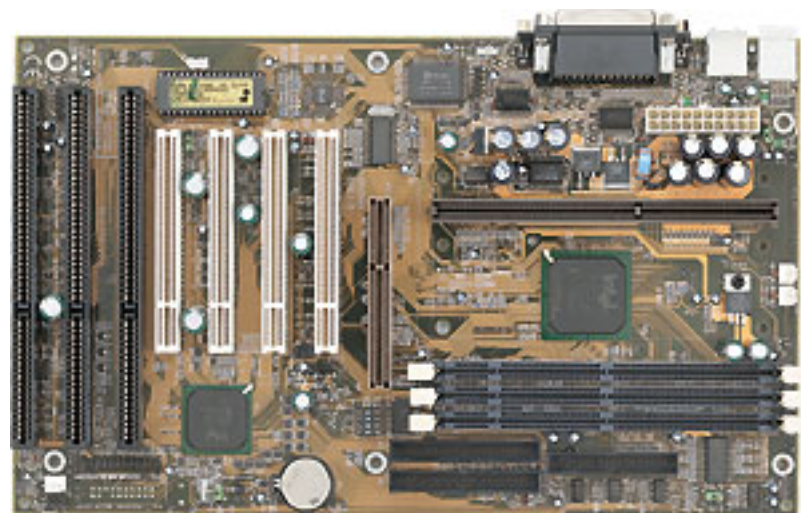
Chapter 1

INTRODUCTION

The ATX BX2 mainboard is a high-performance personal computer mainboard based on the Pentium® II/III or Coppermine processor. The Pentium® II/III/Coppermine processor supports MMX™ (Multimedia Extension) technology.

The mainboard uses the highly integrated Intel® 82443BX AGP chipset to support the PCI/ISA and Green standards, and to provide the Host/AGP bridge. The Intel® 82371EB chipset integrates all system control functions such as ACPI (Advanced Configuration and Power Interface). The ACPI provides more Energy Saving Features for the OSPM(OS Direct Power Management) function. The Intel® 82371EB chipset also improves the IDE transfer rate by supporting Ultra DMA/33 IDE that transfers data at the rate of 33MB/s.

The mainboard also supports the System Hardware Monitor Controller as an optional function. This function includes: CPU /power supply/chassis fan revolution detect, CPU/system voltage monitor, system temperature monitor, and chassis intrusion detect(optional).

1.1 Mainboard Features

CPU
- Slot 1 for Pentium® II/III or Coppermine processor.
- Supports 233MHz~400MHz, 450MHz, 500Mhz, 550MHz, 600MHz, 650MHz, 700MHz, and faster.
- Core/Bus ratios are x2, x2.5, x3, x3.5, x4, x4.5, x5, x5.5, x6, x6.5, x7 and higher.

Switching Voltage Regulator
- On-board switching mode DC-DC Step Down Regulator.
- Conforms to Intel® VRM ver 8.4 specifications.
- Over-Voltage and Over-Current protection.

Chipset
- Intel® 82440BX AGP chipset.

Clock Generator
- 66.6MHz and 100MHz clocks are supported.
- 68/75/83MHz and 103/112/133MHz clocks (reserved)

Main Memory
- Supports six memory banks using three 168-pin unbuffered DIMM sockets.
- Supports a maximum memory size of 384MB (8M x 8) or 768MB (16M x 4) registered DIMM only.
- Supports ECC(1-bit Error Code Correct) function.
- Supports only 3.3v SDRAM DIMM.

Slots
- One AGP(Accelerated Graphics Port) slot.
  - AGP specification compliant
  - AGP 66/133MHz 3.3v device support
- Four 32-bit Master PCI Bus slots and three 16-bit ISA bus slots wherein one shared slot that can be used as ISA or PCI.
- Supports 3.3v/5v PCI bus Interface.

On-Board IDE
- An IDE controller on the Intel® 82371EB PCI chipset provides IDE HDD/ CD-ROM with PIO, Bus Master and Ultra DMA/33 operation modes.
- Can connect up to four IDE devices.

On-Board Peripherals
- On-Board Peripherals include:
    - 1 floppy port supports 2 FDD with 360K, 720K, 1.2M, 1.44M and 2.88Mbytes.
    - 2 serial ports (COMA + COMB)
    - 1 parallel port supports SPP/EPP/ECP mode
    - 2 USB ports
    - 1 IrDA connector for Fast IrDA. (reserved)

BIOS
- The mainboard BIOS provides "Plug & Play" BIOS which detects the peripheral devices and expansion cards of the board automatically.
- The mainboard provides a Desktop Management Interface(DMI) function which records your mainboard specifications.
- The mainboard provides "CPU Plug & Play" function. (reserved)
  CPU Plug & Play - the user don't need jumper/DIP switch to set the CPU speed setting. The BIOS is used to set the speed.

System Hardware Monitor (optional)
- CPU/Power Supply/Chassis Fan Revolution Detect
- CPU Fan Control (the fan will automatically stop when the system enters suspend mode)
- System Voltage Detect
- CPU Overheat Warning (reserved)
- Chassis Intrusion Detect (reserved)
- Display Actual Current Voltage

RTC
- PIIX4(82371EB) built-in RTC.

Keyboard Connector
- PS/2® keyboard interface and PS/2® mouse interface.

Dimension
- ATX Form Factor: 30cm(L) x 18.6cm(W) x 4 layers PCB.
- Double deck I/O connectors, compatible with Intel® Venus Mainboard.

Mounting
- 6 mounting holes.

Other Features
- Keyboard Password Wake-Up.(reserved)
- LAN Wake-Up.
- Internal/External Modem Wake-Up.
- AC Power Loss Restore.

1.2 Mainboard Layout
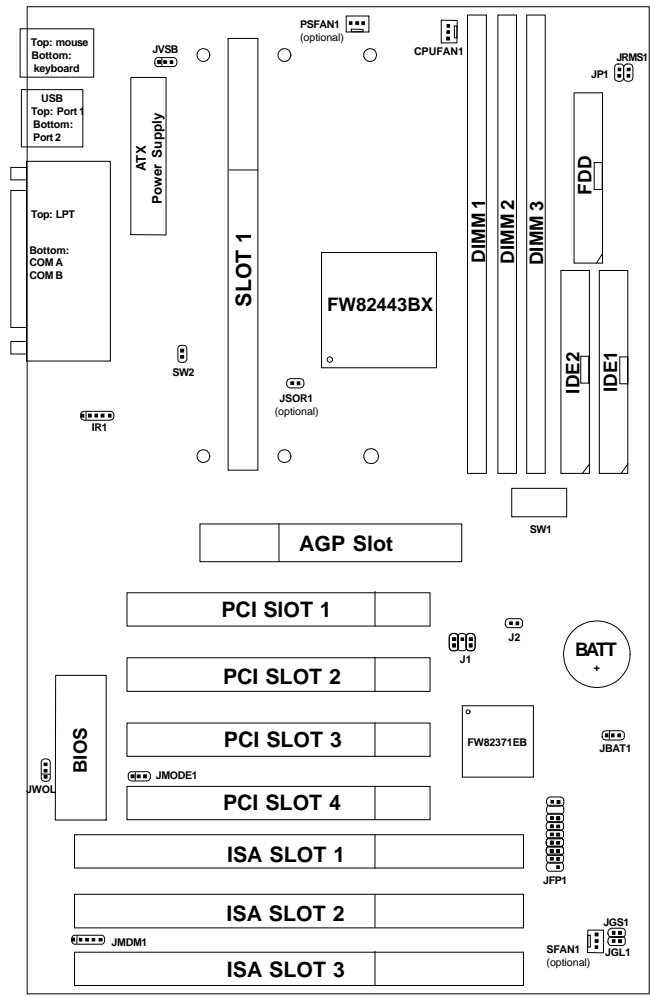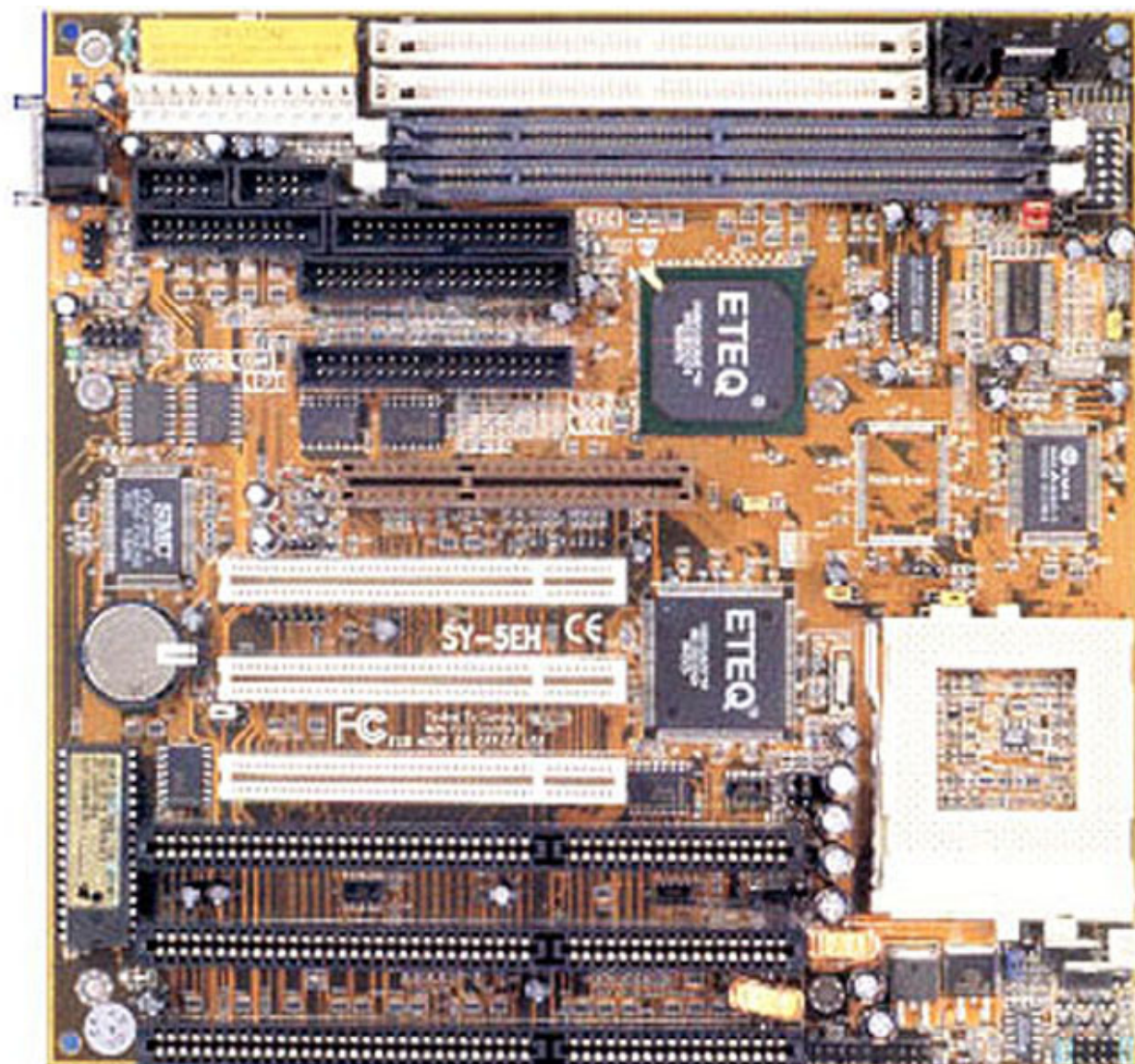
SY-5EHM/5EH5

Super 7 ™

Mainboard

****

Pentium® Class CPU supported

ETEQ82C663 PCI/AGP Mainboard

AT Form Factor

****

User's Guide
&
Technical Reference

About This Guide

This User's Guide is for assisting system manufacturers and end users in setting up and installing the mainboard. Information in this guide has been carefully checked for reliability; however, no guarantee is given as to the correctness of the contents. The information in this document is subject to change without notice.

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If you need any further information, please come to our home page on the Internet. The address is **"http://www.soyo.com.tw"**.

Edition: September 1998
Version 2.0
5EHM/5EH5 SERIAL

FC Tested To Comply
With FCC Standards
FOR HOME OR OFFICE USE

100% POST CONSUMER
RECYCLED PAPER

Table of Contents

SY-5EHM/5EH5 Mainboard Layout

SY-5EHM/5EH5 Platform

Chapter 1

INTRODUCTION

The **SY-5EHM/5EH5** AGP/PCI mainboard is a high-performance AT form-factor system board. **SY-5EHM/5EH5** uses the ETEQ82C663 AGP/PCI Chipset technology and supports Pentium®class processors. This mainboard is fully compatible with industry standards and adds many technical enhancements.

1-1 KEY FEATURES

● **CPU**
  ➢ Supports Intel Pentium Processor P54C/P55C series CPUs featuring speeds of 100-233 MHz
  ➢ Supports Cyrix 6x86/6x86L/6x86MX CPUs with PR150-PR266 speeds and Cyrix M Ⅱ-300-350 CPU
  ➢ Supports AMD K5 CPUs running at PR100-PR166 speeds, AMD K6 CPUs running at speeds of 166-300 MHz speeds, and AMD K6-2 266-350 CPU
  ➢ Features Socket 7 for CPU easy upgrade
  ➢ Supports P54C/P55C series SIMM Mode and CPU Stop Clock

● **L2 Cache Controller**
  ➢ On-board 512KB(SY-5EH5) or 1MB (SY-5EHM) Level 2 Pipeline Burst SRAM Cache

● **DRAM Controller**
  ➢ Supports 2 strips of 168-pin SDRAM unbeffured DIMM 2 x 168-pin DIMM banks support 8/16/32/64/128/256 MB unbuffered DIMM modules
  ➢ Support 2 strips of 72-pin FPM/EDO SIMM 2 x 72-pin SIMM banks support 8/16/32/64 MB SIMM modules
  ➢ Memory configuration:

◆ System memory: 8MB to 640MB with EDO/SDRAM

SY-5EHM/5EH5 PLATFORM FEATURES

Board Size	4-layer PCB, 19x30.5cm(7.5"x12"), AT Form Factor
Socket 7	Socket for Pentium® class CPUs
	with Host Bus frequency of 66/100MH; Supports:
	➢ Intel Pentium® Processors P54C/P55C (100-233MHz)
	➢ Cyrix 6x86 ™(PR166+-PR200+), Cyrix 6x86 MX ™(PR166-PR266) and Cyrix M II ™ (300~350)
	➢ AMD K5 ™(PR100-PR166), and AMD K6 ™(166-300) and AMD K6 ™2 (266~350)
Chipset	ETEQ82C663 PCI/AGP Bus Chipset
ATX Power	20-pin Male Connector
JP12	3-pin CPU Cooling Fan Connector
Memory	DIMM Bank (DIMM1 & DIMM2)
	➢ 168-pin Unbuffered EDO/SDRAM DIMM Module
	➢ Supports 8~256MB DIMM in each Bank
	➢ Supports ECC configuration
	SIMM Bank (Bank1,2)
	➢ 72-pin SIMM Modules
BIOS	System BIOS built-in, Award BIOS
	➢ APM, ACPI and "Plug-and-Play" function
	➢ Supports multiple-boot function
	➢ DMI utility
PCI Slots	3 x 32-bit Bus Mastering Slots
ISA Slots	3 x 16-bit ISA Slots
IDE1, IDE2	2 x 40-pin Bus Mastering E-IDE/ATAPI Ports
	➢ IDE1: Primary IDE Device Connector
	➢ IDE2: Secondary IDE Device Connector
	➢ Supports Ultra DMA/33
FDC	1 Floppy Disk Drive (FDD) Port
	(Supports 1.2MB/1.44MB/2.88MB and LS120/3-mode FDD)
SIR	5-pin Serial Infrared Device Connector
Keylock	5-pin KeyLock Connector
Reset	2-pin Reset Switch Connector
Speaker	4-pin PC Speaker Connector
TB_LED	2-pin Turbo LED Connector
HDD_LED	2-pin IDE Device LED Connector
PWRBT	ATX Power On/Off Switch 2-pin Connector

JP5	CMOS Clear Jumper
JP7	CPU bus clock frequency Jumper
JP9, JP10	SDRAM frequency Jumpers
JP30	CPU Voltage Selection Jumper
JP22	CPU Burst Mode Jumper
JP37	DIMM Voltage Jumper
JP44	WOL (Wake-On-LAN) 3-pin Connector
SW1	CPU frequency Settings Jumper

1-2 HANDLING THE MAINBOARD

To avoid damage to your mainboard, follow these simple rules while unpacking:

➢ Before handling the mainboard, ground yourself by grasping an unpainted portion of the system's metal chassis.

➢ Remove the mainboard from its anti-static packaging. Hold the mainboard by the edges and avoid touching its components.

➢ Check the mainboard for damage. If any chip appears loose, press carefully to seat it firmly in its socket.

Warning: Do not apply power if the mainboard appears damaged. If there is damage to the board, contact your dealer immediately.

1-3 ELECTROSTATIC DISCHARGE PRECAUTIONS

Make sure to ground yourself before handling the mainboard or other system components. Electrostatic discharge can easily damage the components. Note that you must take special precautions when handling the mainboard in dry or air-conditioned environment.

To protect your equipment from electrostatic discharge, take the following precautions:

➢ Do not remove the anti-static packaging until you are ready to install.

➢ Ground yourself before removing any system component from its protective anti-static packaging. (To ground yourself, grasp the expansion slot covers or other unpainted portions of the computer chassis.)

➢ Frequently ground yourself while working or use a grounding strap.

Chapter 2

HARDWARE SETUP

Congratulations on your purchase of **SY-5EHM/5EH5** Super 7 ™
Mainboard. You are about to install and connect your new
mainboard.

STOP

Note: Do not unpack the mainboard from its protective
anti-static packaging until you have made the following
preparations.

2-1 Preparations

Gather and prepare all the following hardware equipment to
complete the installation successfully:

1.   Pentium processor with CPU cooling fan.
2.   DIMM memory module
3.   Computer case and chassis with adequate power supply unit
4.   Monitor
5.   Keyboard
6.   Pointing Device (Serial or PS/2 mouse)
7.   Speaker(s) (optional)
8.   Disk Drives: HDD, CD-ROM, Floppy drive …
9.   External Peripherals: Printer, Plotter, and Modem (optional)
10.   Internal Peripherals: Modem and LAN cards (optional)

2-2 Unpacking the Mainboard

When unpacking the mainboard, check for the following items:

> ➢ The SY-5EHM/5EH5 ETEQ82C663 PCI/AGP Mainboard
> ➢ The Quick Start Guide *
> ➢ The Installation CD-ROM *
> ➢ The CPU Retention Set
> ➢ One IDE Device Flat Cable
> ➢ One Floppy Disk Drive Flat Cable
> ➢ One bracket with one 9-pin serial connector, attached with 9-pin flat cable, and one 6-pin PS/2 mouse connector, attached with 6-pin cable.
> ➢ One bracket with one 25-pin connector paraller connector attached with 25-pin flat cable and one 9-pin serial connector attached with 9-pin flat cable.

* If your board comes with a driver disc and a paper manual, the Quick Start Guide and the CD-ROM are not included in the package.

> *Warning:* Do not unpack the mainboard from its anti-static packaging until you are ready to install it.

Like most electronic equipment, your mainboard may be damaged by electrostatic discharge. To avoid permanent damage to components ground yourself while working by using a grounding strap. Otherwise, ground yourself frequently by touching the unpainted portion of the computer chassis to drain the static charges.

Handle the mainboard carefully, holding it by the edges.

You are now ready to start the installation.

7

2-3 Installation Guide

We will now begin the installation of the mainboard. Please follow the step-by-step procedure designed to lead you to a complete and correct installation.

Step 1. CPU Installation

Follow these instructions to install your Pentium® class processor correctly.

Locate the CPU socket labeled Socket 7 on your mainboard and note the distinctive pinhole arrangement.

Note the corresponding pinhole arrangement on the processor.
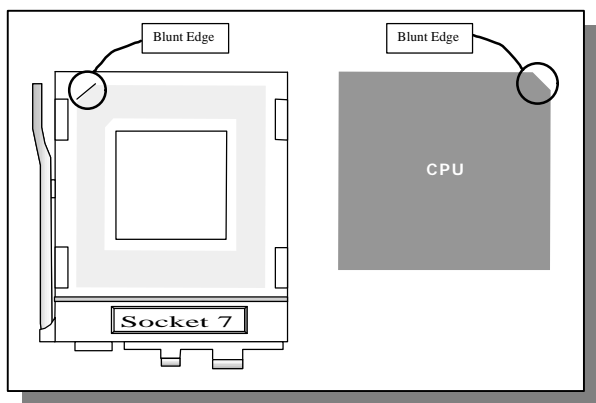
Follow these steps to install the CPU in the Socket 7:

1. Lift the socket handle up to a vertical position.
2. Align the blunt edge of the CPU with the matching pin-hole distinctive edge on the socket.
3. Seat the processor in the socket completely and without forcing.
4. Then close the socket handle to secure the CPU in place.
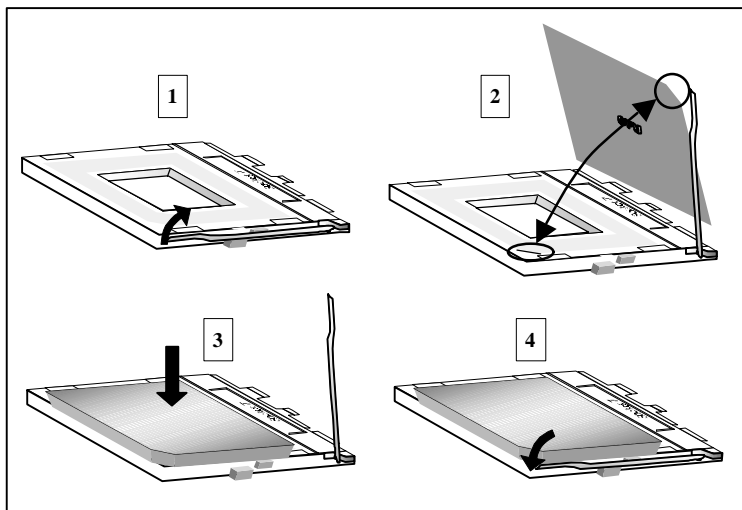
Step 2.   CPU Fan (JP12) Installation

Your Pentium®processor kit comes with a cooling fan. Mount the fan on the processor according to the instructions provided by the manufacturer. The fan is a key component that will ensure system stability. The fan prevents overheating, therefore prolonging the life of your CPU.

Note: Remember to connect the fan to the appropriate power source.

Step 3. CPU Voltage Setting (JP30)
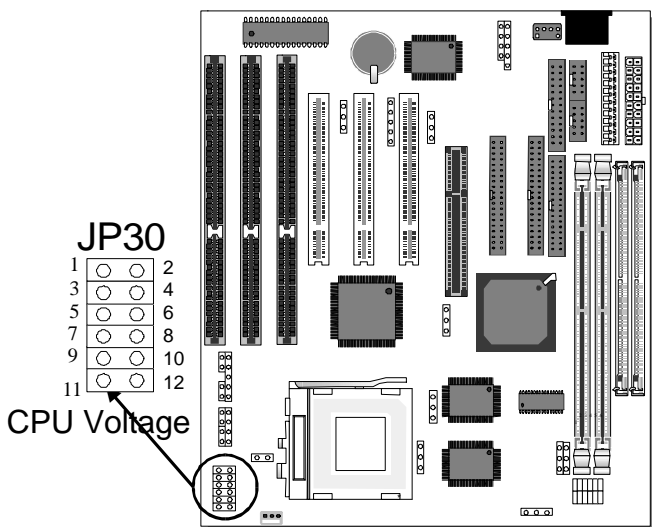
Please verify the correct voltage with your dealer before installation. Use the following tables to set JP30 to the proper "Voltage Value", according to the specifications marked on your CPU: This mainboard comes with pre-configured setting of CPU voltage. However the voltage of your CPU maybe different with the default setting.

● **CPU VOLTAGE SETTING (JP30)**

JP30 are the only jumpers that you need to set for your CPU voltage on this mainboard.

There are two kinds of CPU voltages currently on the market depending on the CPU manufacturer:

➢ Single Voltage   (CPU: P54C, AMD-K5, Cyrix 6x86)
➢ Dual Voltage   (CPU: P55C, AMD-K6, AMD-K6-2 Cyrix 6x86L,Cyrix 6x86MX, Cyrix M II)

Those processors may come in various voltages on different

markets. Therefore, always make sure you know the type of the CPU you are installing and adjust the settings on JP30 accordingly.

This motherboard supports CPU voltages from 2.0 to 3.52V in 0.1V increments. Use the following tables to set the CPU voltage jumpers JP30 to match the voltage value of your CPU:

CPU Voltage Setting: JP30

Voltage Value	1-2	3-4	5-6	7-8	9-10	11-12
single3.5V*	**close**	open	open	open	open	**close**
single 3.3V	**close**	open	open	open	**close**	open
dual 3.2V	**close**	open	open	**close**	open	open
dual 3.1V	**close**	**close**	**close**	open	open	open
dual 3.0V	**close**	**close**	open	open	open	open
dual 2.9V	**close**	open	**close**	open	open	open
dual 2.8V	**close**	open	open	open	open	**close**
dual 2.7V	open	**close**	**close**	**close**	open	open
dual 2.6V	open	**close**	open	**close**	open	open
dual 2.5V	open	open	**close**	**close**	open	open
dual 2.4V	open	open	open	**close**	**close**	open
dual 2.3V	open	**close**	**close**	open	open	open
dual 2.2V	open	**close**	open	open	**close**	open
dual 2.1V	open	open	**close**	open	**close**	open
dual 2.0V	open	open	open	open	open	open

Voltage Settings for Various Processors

Processor Voltage Setting	Voltage Value: JP30
Intel P54C - P100 Intel P54C - P133	VCORE:3.3V VI/O:3.3V
Intel P54C - P166 Intel P54C - P200	VCORE:3.5V VI/O:3.5V
Intel P55C - P166 Intel P55C - P200 Intel P55C - P233	VCORE:2.8V VI/O:3.3V
AMD K5 - PR100 AMD K5 - PR133 AMD K5 - PR166	VCORE:3.5V VI/O:3.5V
AMD K6 166 AMD K6 200	VCORE:2.9V VI/O:3.3V
AMD K6 233	VCORE:3.2V VI/O:3.3V
AMD K6 266 AMD K6 300 AMD K6-2 266 AMD K6-2 300 AMD K6-2 333 AMD K6-2 350	VCORE:2.2V VI/O:3.3V

Voltage Settings for Various Processors (continued)

Processor Voltage Setting	Voltage Value: JP30
Cyrix 6x86(L) PR166+ Cyrix 6x86(L) PR200+	The Cyrix 6x86(L) come in several versions with different voltages. Please ask your dealer for the correct voltage.
Cyrix 6x86MX-PR166* Cyrix 6x86MX-PR200* Cyrix 6x86MX-PR233* Cyrix 6x86MX-PR266* Cyrix M II 300* Cyrix M II 333* Cyrix M II 350*	 VCORE:2.9V VI/O:3.3V
* Set the proper CPU voltage according to the marking on the CPU.	

Step 4. CPU Frequency Setting (SW1)

ON

1 2 3 4 5 6
SW1
Host Bus Frequency

ON

1 2 3 4 5 6
SW1
Frequency Multiplier
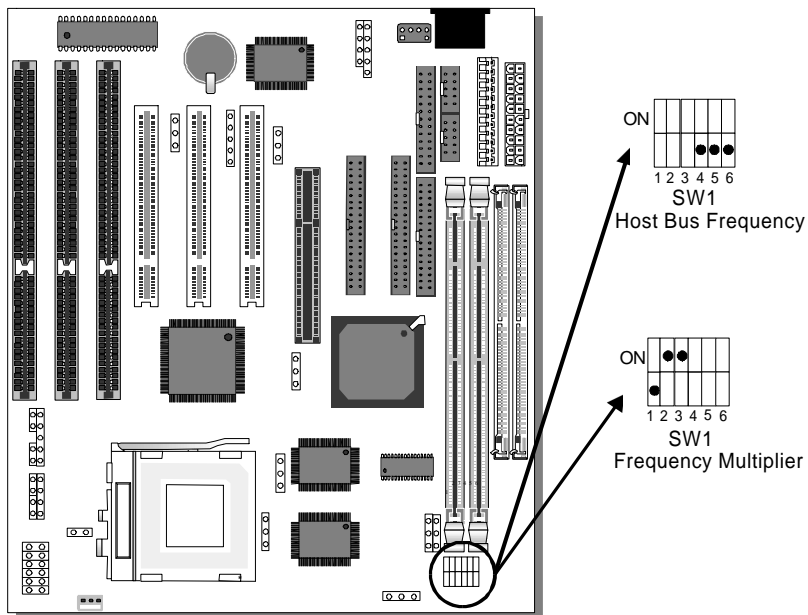
The SY-5EHM/5EH5 mainboard is designed to support most Pentium® class processors currently on the market. Jumpers SW1 is used to configure the mainboard frequency parameters to match the working frequency of your CPU.

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● **CPU FREQUENCY SETTING (SW1)**

Configure the SW1 jumpers to the settings that match your CPU speed. Refer to the following tables to set the Frequency Multiplier and Host Bus Frequency of your CPU:

Frequency Multiplier   *Host Bus Frequency*

Multiplier	1	2	3
1.5/3.5x	off	off	off
2.0x*	**on**	off	off
2.5x	**on**	**on**	off
3.0x	off	**on**	off
4.0x	**on**	off	**on**
4.5x	**on**	**on**	**on**
5.0x	off	**on**	**on**

Host Bus Frequency	4	5	6
66MHz	off	off	off
75MHz	off	**on**	off
83MHz	**on**	**on**	off
95MHz	**on**	off	**on**
100MHz	off	off	**on**
112MHz	off	**on**	**on**
124MHz	**on**	off	off

Example: If the working frequency of your CPU is 133MHz, then select Multiplier=2.0x and Host Bus Frequency=66Mhz accordingly.

Also, as newer and higher frequency CPUs may not be listed in this section, please refer to the tables *CPU Frequency Settings for Various Processors* on page 8 for complementary information.

Please refer to the following table that gives you the correct frequency settings for the specific brand and model of CPU you are installing on this mainboard.

Frequency Settings for Intel® Processors

Processor Frequency Setting	Ratio	Bus Clock	AGP Clock	PCI Clock	Frequency Setting: SW1
Intel P54C - P100	1.5 x	66MHz	66MHz	33MHz	
Intel P54C - P133	2.0 x	66MHz	66MHz	33MHz	
Intel P54C - P166	2.5 x	66MHz	66MHz	33MHz	
Intel P54C - P200	3.0 x	66MHz	66MHz	33MHz	
Intel P55C - P166	2.5 x	66MHz	66MHz	33MHz	
Intel P55C - P200	3.0 x	66MHz	66MHz	33MHz	
Intel P55C - P233	3.5 x	66MHz	66MHz	33MHz	
* Set the proper CPU frequency according to the marking on the CPU.					
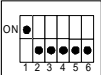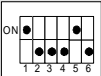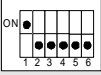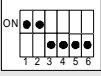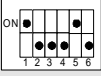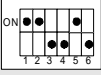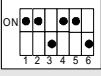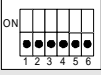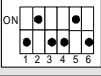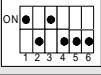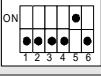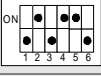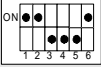
Frequency Settings for AMD ™Processors
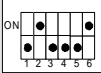
Processor Frequency Setting	Ratio	Bus Clock	AGP Clock	PCI Clock	Frequency Setting: SW1
AMD K5 - PR100	1.5 x	66MHz	66MHz	33MHz	
AMD K5 - PR133	2.0 x	66MHz	66MHz	33MHz	
AMD K5 - PR166	2.5 x	66MHz	66MHz	33MHz	
AMD K6 - 166	2.5 x	66MHz	66MHz	33MHz	
AMD K6 - 200	3.0 x	66MHz	66MHz	33MHz	
AMD K6 - 233	3.5 x	66MHz	66MHz	33MHz	
AMD K6 - 266	4.0 x	66MHz	66MHz	33MHz	
AMD K6 - 300	4.5 x	66MHz	66MHz	33MHz	
AMD K6-2 266	4.0 x	66MHz	66MHz	33MHz	
AMD K6-2 300	3.0 x	100MHz	66MHz	33MHz	
AMD K6-2 333	3.5 x	95MHz	63.4MHz	31.7MHz	
AMD K6-2 350	3.5 x	100MHz	66MHz	33MHz	

* Set the proper CPU frequency according to the marking on the CPU.

Frequency Settings for Cyrix ™Processors

Processor Frequency Setting	Ratio	Bus Clock	AGP Clock	PCI Clock	Frequency Setting: SW1
Cyrix 6x86 - PR166+	2.0 x	66MHz	66MHz	33MHz	
Cyrix 6x86 - PR200+	2.0 x	75MHz	75MHz	37.5MHz	
Cyrix MX - PR166**	2.0 x	66MHz	66MHz	33MHz	
Cyrix MX - PR200**	2.5 x	66MHz	66MHz	33MHz	
Cyrix MX - PR200**	2.0 x	75MHz	75MHz	37.5MHz	
Cyrix MX - PR233**	2.5 x	75MHz	75MHz	37.5MHz	
Cyrix MX - PR266**	2.5 x	83MHz	55MHz	27.5MHz	
Cyrix M II - 300**	3.5 x	66MHz	66MHz	33MHz	
Cyrix M II - 300**	3.0 x	75MHz	75MHz	37.5MHz	
Cyrix M II - 333**	4.0 x	66MHz	66MHz	33MHz	
Cyrix M II - 333**	3.5 x	75MHz	75MHz	37.5MHz	
Cyrix M II - 333**	3.0 x	83MHz	55MHz	27.5MHz	
Cyrix M II - 333**	2.5 x	100MHz	66MHz	33MHz	

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Frequency Settings for Cyrix ™Processors (Continued)

Processor Frequency Setting	Ratio	Bus Clock	AGP Clock	PCI Clock	Frequency Setting: SW1
Cyrix M II - 350**	3.0 x	100MHz	66MHz	33MHz	ON [image] 1 2 3 4 5 6

** Set the proper CPU frequency according to the marking on the CPU. Over specification is not guaranteed.

Step 5.   Set JP7,JP9,JP10 for SDRAM frequency

JP7 is used to indicate the frequency of the CPU bus clock to the ETEQ chipset.

JP9 and JP10 are used to determine that the SDRAM is running at the frequency of the CPU bus clock or the AGP clock.

CPU BUS Clock	AGP BUS Clock	JP10	JP7	JP9	SDRAM Clock
66MHz	66MHz	1-2	2-3	2-3	66MHz
75MHz	75MHz	1-2	2-3	2-3	75MHz
83MHz	55MHz	2-3	1-2	1-2	55MHz
		1-2	1-2	2-3	83MHz
95MHz	63.4MHz	2-3	1-2	1-2	63.4MHz
		1-2	1-2	2-3	95MHz
100MHz	66MHz	2-3	1-2	1-2	66MHz
		1-2	1-2	2-3	100MHz
112MHz	75MHz	2-3	1-2	1-2	75MHz
		1-2	1-2	2-3	112MHz
124MHz	82.6MHz	2-3	1-2	1-2	82.6MHz
		1-2	1-2	2-3	124MHz

Note: Use 8ns or faster SDRAM modules (PC100 compliant) when SDRAM is set to run at the frequency of 95/100 MHz.

Step 6. DRAM Module Installation

This mainboard supports two strips of 72-pin 5V FPM/EDO DRAM (SIMM) from 4 to 64 MB and two strips 168-pin 3.3V/5V Unbuffered DIMM modules from 8 to 256 MB. The mainboard requires SIMM modules of at least 70ns access time.
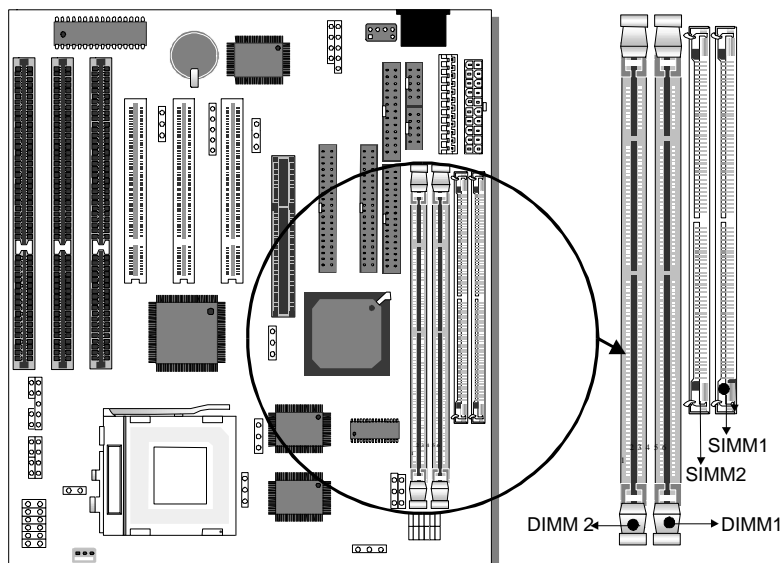
This mainboard supports both EDO and SDRAM types of memory modules.

Note:

Do not install EDO type of DIMM modules if you already use SDRAM in any DIMM bank..

● MEMORY CONFIGURATION

This mainboard features 2 x DIMM Banks for 168-pin 3.3V unbuffered DIMM modules; 2 x SIMM Banks for 72-pin.

Your board comes with one SIMM Bank (2 modules) and two DIMM sockets, providing support for up to 512MB of main memory using DIMM modules from 8MB to 256MB. For 66MHz host bus CPUs use 12ns or faster DIMM modules; for 83MHz host bus CPUs use 8ns modules.

Memory Configuration Table

MEMORY CONFIGURATION	SIMM Bank	DIMM Banks	
	Bank 1,2	DIMM 1	DIMM 2
RAM Type	FPM/EDO/BEDO	FPM/EDO/SDRAM	FPM/EDO/SDRAM
Single RAM Module Size (MB)	4/8/16/32/64	8/16/32/64/128/256	8/16/32/64/128/256

Note: 1. You must install two SIMM modules to complete the SIMM Bank

2. Do not use FPM or EDO type of SIMM/DIMM if you already use SDRAM.

3. Do not install SIMM Bank and DIMM 1 at the same time.

Step 7.   IDE Device Installation (HDD, CD-ROM)

This mainboard offers two primary and secondary IDE device connectors (IDE1, IDE2.) It can support up to four high-speed HDD or CD-ROM.

Connect one side of the 40-pin flat cable to the IDE device (HDD or CD-ROM) and plug the other end to the primary (IDE1) or secondary (IDE2) directionally keyed IDE connector on the mainboard.

This mainboard can support up to four HDDs.

Step 8.   Floppy Drive Installation

The system supports 5 possible floppy drive types: 720 KB, 1.2 MB, 1.44 MB, 2.88 MB, and LS-120. In addition, this mainboard supports a 3-mode (720KB/1.25MB/1.44MB) floppy commonly used in Japan. Connect one side of the 34-pin flat cable to the floppy drive and plug the other end to the floppy drive connector on the mainboard.

This mainboard can support up to 2 floppy drives.

Step 9. Front Panel Connections
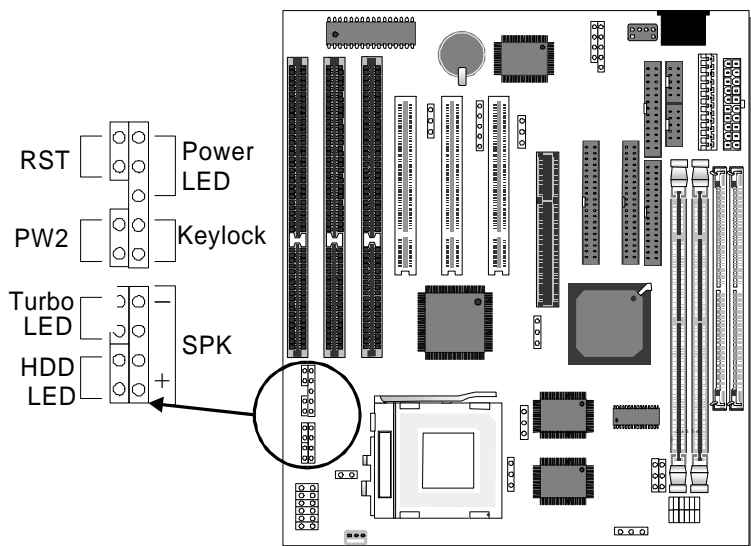
Plug the computer case's front panel devices to the corresponding connectors on the mainboard.

1. Power LED & KeyLock

Plug the Power LED cable into the 5-pin Keylock connector.
Some systems may feature a KeyLock function with a front panel switch for enabling or disabling the keyboard. Connect the KeyLock switch to the 5-pin Keylock connector on the mainboard.
Please install according to the following pin assignment: pin 1,3 are for Power LED and pin 4,5 are for Keylock.

2. Reset

Plug the Reset push-button cable into the 2-pin Reset connector on the mainboard. Pushing the Reset button on the front panel will cause the system to restart the boot-up sequence.

3. Speaker

Attach the 4-pin PC speaker cable from the case to the Speaker connector on the mainboard.

4. Turbo LED

Connecting the 2-pin Turbo LED cable to the corresponding Turbo LED connector will cause the LED to light whenever the system is in Turbo mode.

The manufacturer has permanently set this mainboard in Turbo mode due to most hardware and software compliance to turbo mode.

5. IDE LED

Attach the 2-pin IDE device LED cable to the corresponding IDE LED connector on the mainboard. This will cause the LED to lighten when an IDE (HDD, CD-ROM) device is active.

6. ATX Power On/Off Switch

Attach the 2-pin momentary type switch to the PWRBT connector for turning On or Off your ATX power supply.

Step 10. External Peripherals Connections

External devices such as the keyboard, printer, PS/2 mouse, modem, USB can be connected to the Mainboard. Normally, you can not plug your devices directly onto the Mainboard, except for the keyboard that plugs directly into the back panel KB connector.

For other parallel (PRT1) and serial devices (COM1, COM2), first install the external connectors that come with your Mainboard on the computer case, then plug the other end of the flat cable to their respective connectors.

Only after you have fixed and locked the Mainboard and external connectors to the computer case can you start connecting the external peripheral devices.

When connecting an external device, use the following figure to locate and identify which back panel connector to plug the device or flat cable to.

25
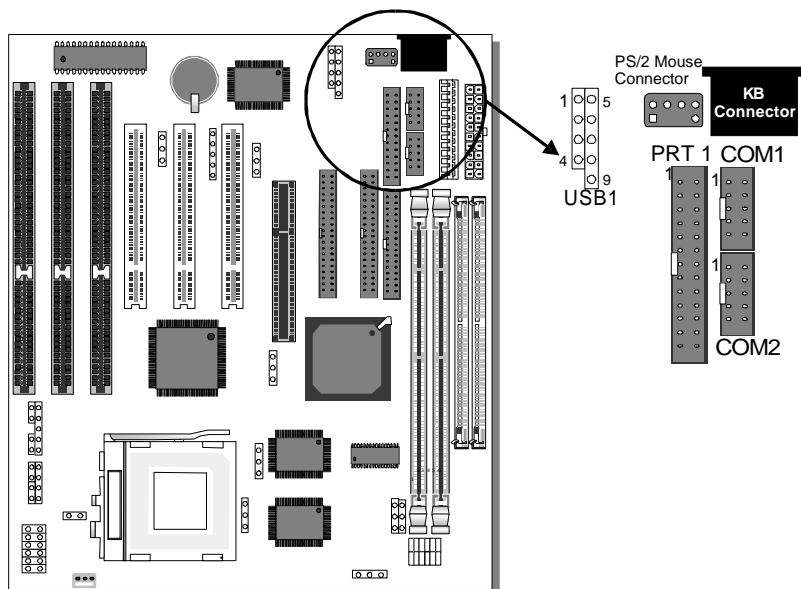
1. Serial Ports COM1/COM2

External Devices that use the COM ports include serial mice and
modems. The COM port connectors are located on 2 separate
brackets panels, as shown on the figure below. Please plug their
respective 10 pin flat cable connectors into the COM1 and COM 2
serial port connectors on the mainboard.
The bracket panels should be fixed to one of the slots at the back of
the computer case using a screw, after having finished this you can
plug any serial device into the back panel connectors.
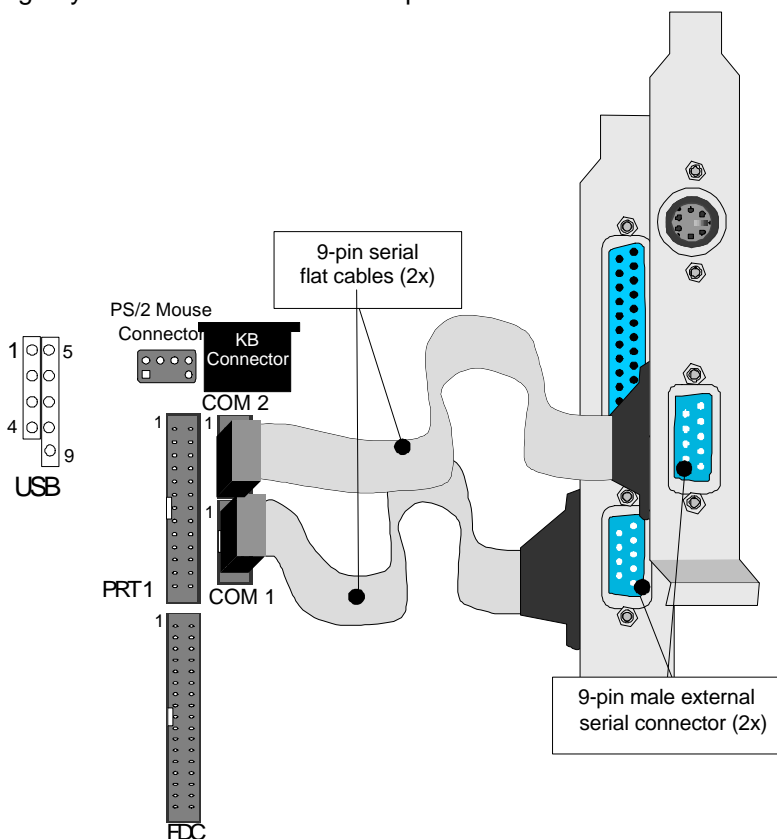
Parallel Port PRT1

This parallel port is used to connect the printer or other parallel devices.

Your Mainboard comes with one 25-pin female external parallel connector with 25-pin flat cable.

Plug the 25-pin end of the flat cable into the PRT1 parallel connector on the Mainboard, as shown in the figure below, then fix the bracket to one of the slots at the back of the computer case using a screw. After having finished this you can plug any parallel device into the back panel connectors.
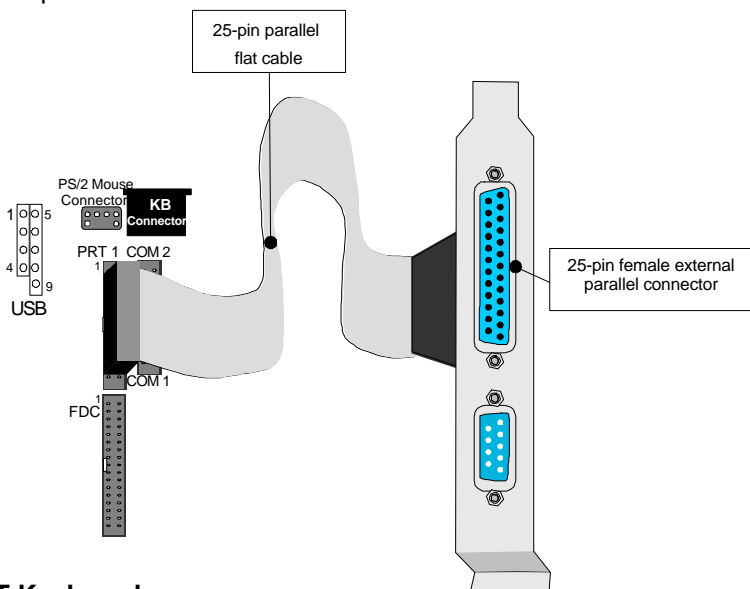
AT Keyboard

Plug the keyboard jack directly into the 5-pin female AT keyboard connector located at the rear panel of the Mainboard.

AT Keyboard

Connector

PS/2 Mouse

Attach the mouse cable to the 6-pin male PS/2 mouse connector on the Mainboard to enable PS/2 mouse function.
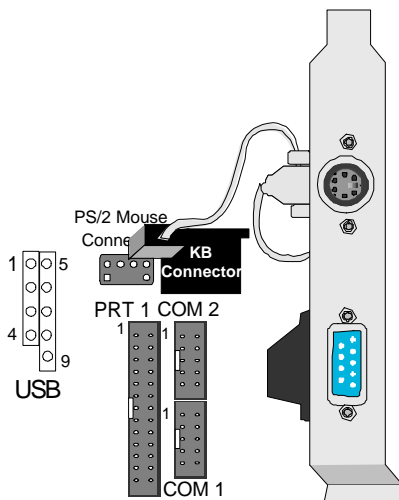
Universal Serial Bus (USB)

This mainboard provides a dual-row 10-pin header (one pin is empty) to support two USB ports for your additional devices. Attach the USB cable (**Optional**) to this header as shown in the diagram below. The USB cable has two USB ports mounted on a bracket.
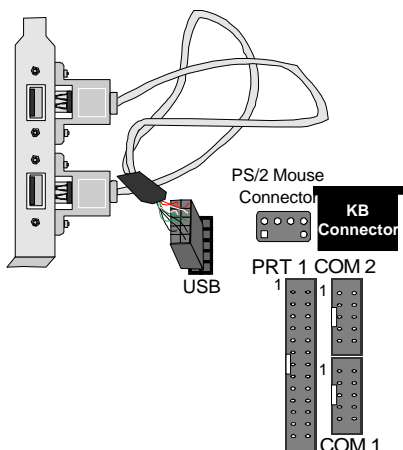
Step 11. Others Connector

1.   Wake-On-LAN (WOL)

Attach the 3-pin connector from the LAN card which supports the Wake-On-LAN   (WOL) function to the JP44 connector on the mainboard. This WOL function lets users wake up the connected computer through the LAN card.

Please install according to the following pin assignment:

```
              Wake-On-LAN
           JP44 Pin Assignment

    5VSB      GND      MP_Wakeup


             1   2   3
           ┌─────────────┐
           │  ■   ○   ○  │
           └─────────────┘
```
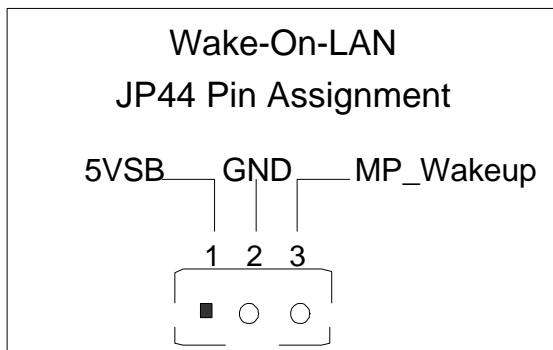
2. Infrared (IR)

Plug the 5-pin infrared device cable to the IR connector. This will enable the infrared transfer function. This mainboard meets both the ASKIR and HPSIR specifications.

Please install according to the following pin assignment:

```
      Serial Infrared (SIR) Connector
             SIR Pin Assignment

    VCC          IRRX  GND      IRTX

        ┌──────────────────────┐
        │  ■      ○   ○   ○     │
        └──────────────────────┘
           1   3   2   4   5
```
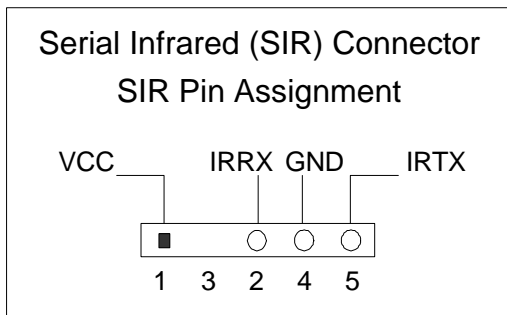
Step 12. CPU Cooling Fan Installation

After you have seated the CPU cooling fan properly on the processor, attach the 3-pin fan cable to the JP12 connector on the mainboard.

To avoid damage to the system, install according to the following pin assignment:

CPU Cooling Fan: JP12

3   2   1

NC   12V   GND
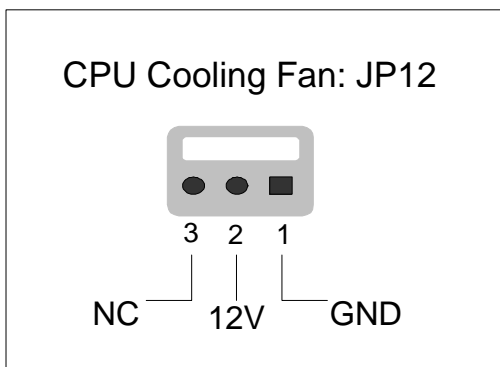
Step 13. ATX Power Supply

Plug the connector from the power directly into the 20-pin male ATX PW connector on the mainboard, as shown in the following figure.
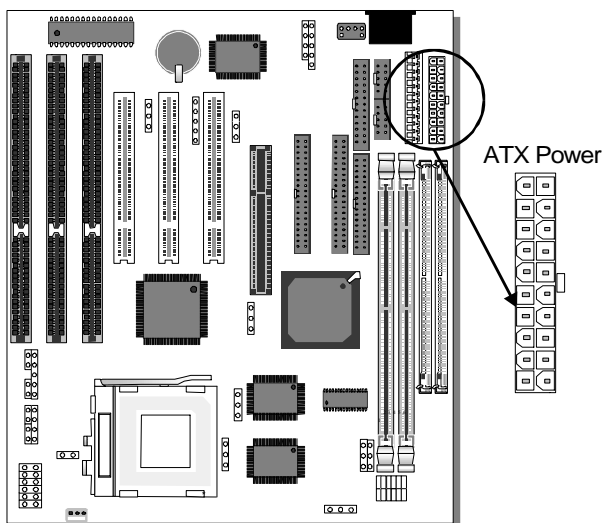
ATX Power

> ***Warning:*** Follow these precautions to preserve your mainboard from any remnant currents when connecting to ATX power supply:
>
> **Turn off the power supply and unplug the power cord of the ATX power supply before connecting to ATX PW connector.**

The mainboard requires a power supply with at least 200 Watts and a "power good" signal. Make sure the ATX power supply can take at least 10 mA mp* load on the 5V Standby lead (5VSB) to meet the standard ATX specification.

** **Note:*** If you use the Wake-On-LAN (WOL) function, make sure the ATX power supply can support at least 720 mAmp on the 5V Standby lead (5VSB).
Please install the ATX power according to the following pin assignment:

ATX Power

12V	5V
5VSB	5V
PW-0K	-5V
GND	GND
5V	GND
GND	GND
5V	PS-ON
GND	GND
3.3V	-12V
3.3V	3.3V
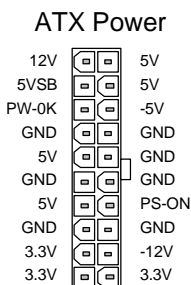
➢ **Pay special care to the directionality.**

Step 14. AT Power Supply

If you are using AT power, plug the dual 6-pin headers from the power directly into the 12-pin male AT Power connector on the mainboard. Make sure the black leads of the 6-pin AT power headers are in the center.

Step 15. CMOS Clearing (JP5)

After you have turned off your computer, clear the CMOS memory
by momentarily shorting pins 2-3 on jumper JP5, for a few seconds.
Then restore JP5 to the initial 1-2 jumper setting in order to recover
and retain the default settings.

CMOS Clearing	Clear CMOS Data		Retain CMOS Data	
JP5 Setting	Short pin 2-3 for a few seconds to clear the CMOS	⊡ ⊙—⊙ 1 2 3	Short pin 1-2 to retain new settings	⊙—⊙ ⊡ 1 2 3
Note: You must unplug the ATX power cable from the ATX power connector when performing the CMOS Clear operation.				

Step 16. Select the CPU Burst Mode (JP22)

There are two types of CPU burst modes according to manufacturer
design:

> ➢ Interleave Burst   (CPU: Intel P54C/P55C, AMD
>   K5/K6/K6-2)
> ➢ Linear Burst   (CPU: Cyrix 6x86/L/MX/M¢ ৷

CPU Burst Mode	Interleave		Linear	
	Intel® P54C/P55C AMD ™K5/K6/K6-2		**Cyrix ™6x86/L/MX/M ¢ °**	
JP22 Setting	When using Intel or AMD CPUs.	⦿ 1 ⦿ 2 ⊡ 3	When using Cyrix type of CPU.	⊡ 1 ⦿ 2 ⦿ 3

If you are using a Cyrix ™6x86/L/MX/M II series CPU, set the burst

mode to Linear by shorting pin 1-2 on jumper JP22, and follow the

following steps to select the correct Linear burst mode in BIOS:
1. During the boot-up initial sequence, press the [Delete] key to
   enter the BIOS setup menu.
2. Select the [CHIPSET FEATURES SETUP] section in BIOS.
3. In the [CHIPSET FEATURES SETUP] sub-menu, set the [Linear
   Burst] field to [Enabled].
4. Press [Esc] to return to the BIOS main menu.

5.   Then choose [Save & Exit Setup] to re-boot your computer.

Step 17. Adjust the DIMM Voltage (JP37)

There are two kinds of DIMM voltages on the market: 3.3V and 5V

Most SDRAM DIMMs on the market feature a voltage value of 3.3V.
Set JP37 to the correct voltage value according to the DIMM
modules that you are using.

DIMM Voltage	3.3V (Default)	5V Check DIMM voltage carefully before setting the jumper
JP37 Setting	1 ⊙⊙ 2 3 ⊙⊙ 4 5 ◯◯ 6	1 ◯◯ 2 3 ⊙⊙ 4 5 ⊙⊙ 6

Step 18. MULTI I/O ADDRESSES

Default settings for multi-I/O addresses are as follows:

Port	I/O Address	IRQ	Status
LPT1	378H	7	ECP + EPP
COM1	3F8H	4	
COM2	2F8H	3	

> *Warning:* If a default I/O address conflicts with other I/O
> cards such as sound card, you must change one of the I/O
> addresses to remedy to this address conflict. (I/O addresses
> can be adjusted from the BIOS Setup Utility)

Step 19. CACHE CONFIGURATION

This mainboard has a built-in 1MB Level 2 Pipelined Burst cache onboard to improve the system performance.

The cache size and RAM locations are specified as follows:

Cache Size	Cache RAM	TAG RAM	Cacheable Range
1 MB	64K x 64 on U2,U3	32K x 8 on U5	WT: 256 MB WB: 128MB
512 KB	64K x 64 on U2	32K x 8 on U5	WT: 128 MB WB: 64 MB

Step 20. Power On

You have now completed the hardware installation of your mainboard successfully.

1. Turn the power on
2. To enter the BIOS Setup Utility, press the <DEL> key while the system is performing the diagnostic checks,

> *Note:* If you have failed to enter the BIOS, wait until the boot up sequence is completed. Then push the RESET button and press <DEL> key again at the beginning of boot-up, during diagnostic checks.

Repeat this operation until you get the following screen.

3. The BIOS Setup screen appears:

```
                    ROM PCI/ISA BIOS
                   CMOS SETUP UTILITY
                  AWARD SOFTWARE, INC.

 STANDARD CMOS SETUP          INTEGRATED PERIPHERALS
 BIOS FEATURES SETUP          SUPERVISOR PASSWORD
 CHIPSET FEATURES SETUP       USER PASSWORD
 POWER MANAGEMENT SETUP       IDE HDD AUTO DETECTION
 PNP/PCI CONFIGURATION        SAVE & EXIT SETUP
 LOAD SETUP DEFAULTS          EXIT WITHOUT SAVING
 LOAD BIOS DEFAULTS

 Esc : Quit                   ↑↓→← : Select Item
 F10 : Save & Exit Setup      (Shift) F2 : Change Color
                  Time, Date, Hard Disk Type…
```

You are now ready to configure your system with the BIOS setup
program. Go to Chapter 3: **BIOS SETUP**

Chapter 3

BIOS SETUP UTILITY

This mainboard's BIOS setup program uses the ROM PCI/ISA BIOS program from Award Software Inc.

To enter the Award BIOS program's Main Menu:

1. Turn on or reboot the system.
2. After the diagnostic checks, press the [Del] key to enter the Award BIOS Setup Utility.

ROM PCI/ISA BIOS	
CMOS SETUP UTILITY	
AWARD SOFTWARE, INC.	
STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP/PCI CONFIGURATION	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING
LOAD BIOS DEFAULTS	
Esc : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Time, Date, Hard Disk Type…	

Selecting items

- Use the arrow keys to move between items and select fields.
- From the Main Menu press arrow keys to enter the selected submenu.

Modifying selected items

- Use the [Up]/[Down] keys to modify values within the selected fields. Some fields let you enter values directly.

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Hot Keys: Function keys give you access to a group of commands throughout the BIOS utility.

Function	Command	Description
F1	Help	Gives the list of options available for each item.
Shift F2	Color	Change the color of the display window.
F5	Old values	Restore the old values. These are the values that the user started the current session with.
F6	Load BIOS Defaults	Loads all options with the BIOS Setup default values.
F7	Load Setup Defaults	Loads all options with the Power-On default values.
F10	Save & Exit Setup	Saves your changes and reboots the system.
[Esc]	Quit	Lets you return at anytime and from any location to the Main Menu.

SAVE AND EXIT SETUP

Select the [SAVE & EXIT SETUP] option from the Main Menu to save data to CMOS and exit the setup utility. This option saves all your changes and causes the system to reboot.
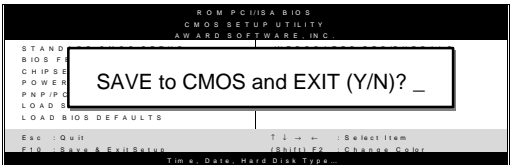
Type [Y] to save the changes and exit or [N] to return to the Main Menu and keep current values.

EXIT WITHOUT SAVING

Selecting the [EXIT WITHOUT SAVING] option allows you to abandon all data and exit setup, therefore ignoring all your changes.
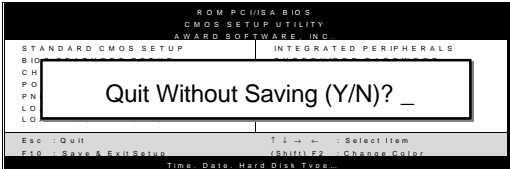
Type [Y] to abandon changes and exit or [N] to return to the Main Menu and keep current values.

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3-1 STANDARD CMOS SETUP

Select the [STANDARD CMOS SETUP] option from the Main Menu
and press [Enter] key.

```
                            ROM PCI/ISA BIOS
                          STANDARD CMOS SETUP
                          AWARD SOFTWARE, INC.

  Date (mm:dd:yy)    : Fri, May 29 1998
  Time (hh:mm:ss)    : 9 : 42 : 43

  HARD DISKS        TYPE     SIZE   CYLS  HEAD  PRECOMP  LANDZ  SECTOR  MODE
  Primary Master    : AUTO     0      0     0       0      0       0   AUTO
  Primary Slave     : None     0      0     0       0      0       0   - - - -
  Secondary Master  : None     0      0     0       0      0       0   - - - -
  Secondary Slave   : None     0      0     0       0      0       0   - - - -

  Drive A : 1.44M, 3.5 in.                    Base Memory:        640K
  Drive B : None                          Extended Memory:       3328K
  Floppy 3 Mode Support : Disabled           Other Memory:        128K

  Video  :  EGA/VGA
  Halt On  :   All Errors                     Total Memory:       4096K

  Esc   : Quit        ↑↓→←      : Select Item      PU/PD/+/-   : Modify
  F1   : Help       (Shift) F2    : Change Color      F3          : Toggle Calendar
```

This screen allows you to modify the basic CMOS settings.
After you have completed the changes, press [Esc] key to return to
the Main Menu.

3-1.1 Date & Time

	Display	Setting	Please Note
Date	mm/dd/yyyy	Type the current date	You can also the PUp/PDn keys to toggle
Time	hh:mm:ss	Type the current time	24-hour clock format 3:15 PM is displayed as 15:15:00

3-1.2 Hard Disks Type & Mode

Choose the type and mode for the hard disks that you have already installed.

Primary (Secondary) Master & Slave	Setting	Description	Note
Type	Auto	BIOS detects hard disk type automatically.	Default
	1-47	Selects standard hard disk type.	
	User	User defines the type of hard disk.	
Mode	Auto	BIOS detects hard disk mode automatically.	Default
	Normal	Normal IDE hard disk	<528MB
	LBA	Enhanced IDE hard disk	>528MB
	Large	Large IDE hard disk (for certain hard disk)	

> *Note:* If you have any questions on your hard disk type or mode, ask your hard disk provider or previous user for details.

3-1.3 Floppy Drives

Floppy Drives	Setting	Description	Note
Drives A & B	360KB, 5.25 in.		
	1.2MB, 5.25 in.		
	720KB, 3.5 in.		
	1.44MB, 3.5 in.		Default
	2.88MB, 3.5 in.		
	None	Not installed	
Floppy 3-Mode Support	Disabled		Default
	Drive A Drive B Both	Supports 3-mode floppy diskette: 740KB/1.25MB/1.44MB on selected disk drive.	Special disk drive commonly used in Japan

3-1.4 Video

Select the video mode: EGA/VGA (Default), CGA 40, CGA 80, Mono (Monochrome).

3-1.5 Halt On

When the BIOS detects system errors, this function will stop the system. Select which type of error will cause the system halt: All Errors (Default), No Errors, All But Diskette, All But Keyboard, All But Disk/Key.

3-2 BIOS FEATURES SETUP

Select the [BIOS FEATURES SETUP] option from the Main Menu and press [Enter] key.

```
                        ROM PCI/ISA BIOS
                      BIOS FEATURES SETUP
                     AWARD SOFTWARE, INC.

Virus Warning              : Disabled    Video   BIOS Shadow  : Enabled
CPU Internal Cache         : Enabled     C8000-CBFFF Shadow   : Disabled
External Cache             : Enabled     CC000-CFFFF Shadow   : Disabled
Quick Power On Self Test   : Enabled     D0000-D3FFF Shadow   : Disabled
Boot Sequence              : A, C, SCSI  D4000-D7FFF Shadow   : Disabled
Swap Floppy Drive          : Disabled    D8000-DBFFF Shadow   : Disabled
Boot Up NumLock Status     : On          DC000-DFFFF Shadow   : Disabled
Gate A20 Option            : Fast
Memory Parity /ECC Check   : Enabled
Typematic Rate Setting     : Disabled
Typematic Rate (Chars/Sec) : 6
Typematic Delay (Msec)     : 250         ESC  : Quit        ↑↓→←  : Select Item
Security Option            : Setup       F1   : Help        PU/PD/+/- : Modify
IDE Second Channel Control : Enable      F5   : Old Values  (Shift) F2  : Color
PCI/VGA Palette Snoop      : Disabled    F6   : Load BIOS Defaults
OS Select For DRAM > 64MB  : Non-OS2     F7   : Load Setup Defaults
Report No FDD For WIN 95   : No
```

After you have completed the changes, press [Esc] key and follow the instructions on your screen to save your settings or exit without saving.

3-2.1 Virus Warning

	Setting	Description	Note
Virus Warning	Disabled		Default
	Enabled	Enable this option to protect the boot sectors and partition tables of your hard disk. Any attempt to write to them will the system to halt and display a warning message.	

3-2.2 Cache Memory Options

	Setting	Description	Note
CPU Internal Cache	Disabled		
	Enabled	Enables the CPU's internal cache.	Default
External Cache	Disabled		
	Enabled	Enables the external memory.	Default

3-2.3 System Boot Control Settings

System Boot Control Settings	Setting	Description	Note
Quick Power On Self Test	Disabled		
	Enabled	Provides a fast POTS at boot-up.	Default
Boot Sequence	A, C, SCSI	Choose the boot sequence adapted to your needs, for example:	
	C, A, SCSI		
	C, CD-ROM, A		
	CD-ROM, C, A	● [A, C, SCSI] means the BIOS will look for an operating system first in drive A, then in drive C, and eventually in SCSI device.	
	D, A, SCSI		
	E, A, SCSI		
	F, A, SCSI		
	SCSI, A, C		
	SCSI, C, A		
	C only		
	LS/ZIP, C		
Swap Floppy Drive	Disabled		Default
	Enabled	Changes the sequence of A and B drives.	
Boot Up NumLock Status	On	Puts numeric keypad in NumLock mode at boot-up.	Default
	Off	Puts numeric keypad in arrow key mode at boot-up.	

System Boot Control Settings (continued)

System Boot Control Settings	Setting	Description	Note
Gate A20 Option	Normal		
	Fast	Allows RAM access above 1MB using the fast gate A20 line.	Default
Memory Parity Check/ ECC Check	Enabled	This allows to perform a redundancy check on the parity bit in the data strings. This method is used for error detection when the parity is not found.	Default
	Disabled		

3-2.4 Typematic Settings

Typematic Settings	Setting	Description	Note
Typematic Rate Setting	Disabled		Default
	Enabled	Enables to adjust the keystroke repeat rate.	
The following [Typematic Rate] and [Typematic Delay] fields are active only if [Typematic Rate Setting] is set to [Enabled]			
Typematic Rate (Chars/Sec)	6 (Char/sec) 8 (Char/sec) 10 (Char/sec) 12 (Char/sec) 15 (Char/sec) 20 (Char/sec) 24 (Char/sec) 30 (Char/sec)	Choose the rate at which a character is repeated when holding down a key.	Default
Typematic Delay (Msec)	250 (msec) 500 (msec) 750 (msec) 1000 (msec)	Choose how long after you press a key down the character begins repeating.	Default

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3-2.5 Other Control Options

Other Control Options	Setting	Description	Note
Security Option	Setup	Use this feature to prevent Unauthorized system boot-up or use of BIOS Setup. "Setup", If a password is set, the password prompt only appears if you attempt to enter the Setup program.	Default
	System	Each time the system is booted the password prompt appears.	
IDE Second Channel Control	Disabled	Turn off the on-board IDE.	
	Enabled	Use a PS/2 mouse.	Default
PCI/VGA Palette Snoop	Disabled		Default
	Enabled		
	The color of the monitor may be altered when using an MPEG card. Enable this option to restore the monitor's normal color.		
OS Select for DRAM>64MB	OS2	When using an OS2 operating system.	
	Non-OS2	When using another, non-OS2 operating system.	Default
Report No FDD For WIN 95	No	Windows will reserve INT 6 for your FDD, whether it is Disabled or not.	Default
	Yes	Windows will release IRQ line 6 (normally used by the Floppy Disk Drive) after you disable you on-board FDD and set this field to [Yes].	

Other Control Options (Continued)

Other Control Options	Setting	Description	Note
Video or Adapter BIOS Shadow	Disabled		
	Enabled		Default
	The BIOS is shadowed in a 16K segment if it is enabled and if it has BIOS present. These 16 segments can be shadowed from ROM to RAM. BIOS shadow copies BIOS code from slower ROM to faster RAM. BIOS can then execute from RAM.		

3-3 CHIPSET FEATURES SETUP

🛑 *Caution:* Change these settings only if you are already familiar with the Chipset.

The [CHIPSET FEATURES SETUP] option changes the values of the chipset registers. These registers control the system options in the computer.

```
                         ROM PCI/ISA BIOS
                      CHIPSET FEATURES SETUP
                       AWARD SOFTWARE, INC.

 Bank 0/1 DRAM Timing      : FP/EDO/60ns
 Bank 2/3 DRAM Timing      : FP/EDO/60ns
 Bank 4/5 DRMA Timing      : FP/EDO/60ns
 DRAM Read Pipeline        : Enabled
 Cache Rd+ CPU Wt Pipeline : Disabled
 Linear Burst              : Disabled

 Video BIOS Cacheable      : Enabled
 System BIOS Cacheable     : Enabled
 Memory Hole At 15Mb Addr. : Disabled
 AGP Aperture Size         : 64M
 AGP –2x Mode              : Disabled    ESC  : Quit         ↑↓→← : Select Item
 On Chip USB               : Enable      F1   : Help         PU/PD/+/- : Modify
 USB Keyboard Support      : Disabled    F5   : Old Values   (Shift) F2 : Color
 Spread Spectrum Modulated : Disabled    F6   : Load BIOS Defaults
                                         F7   : Load Setup Defaults
```

After you have completed the changes, press [Esc] and follow the instructions on your screen to save your settings or exit without saving.

The following table describes each field in the CHIPSET FEATURES SETUP Menu and how to configure each parameter.

CHIPSET FEATURES SETUP

CHIPSET FEATURES	Setting	Description	Note
Bank 0/1 DRAM Timing	FP/EDO 70ns	Use the default setting	Default
Bank 2/3 DRAM Timing **Bank 4/5 DRAM Timing**	Normal Medium Fast, Turbo	Choose DRAM Timing.	
DRAM Read Pipeline	Disabled		
	Enabled	Enhances system performance	Default
Cache Rd+CPU Wt Pipeline	Disabled		
	Enabled	Enhances system performance	Default
Linear Burst	Disabled	Use the default setting	Default
	Enabled	Linear mode SRAM support for Cyrix type of CPU.	
Video BIOS Cacheable	Disabled		
	Enabled	The ROM area A0000-BFFFF is cacheable.	Default
System BIOS Cacheable	Disabled		
	Enabled	The ROM area F0000H-FFFFFH is cacheable	Default
Memory Hole 15Mb Addr.	Disabled	Some interface cards will map their ROM address to this area.	Default
	Enabled		

CHIPSET FEATURES SETUP (Continued)

CHIPSET FEATURES	Setting	Description	Note
AGP Aperture Size	64M 4-256M	AGP could use the DRAM as its video RAM. Choose the JDRAM size that you wish to allocate as video RAM.	Default
AGP-2X Mode	Disabled		Default
	Enabled	Enable only if your AGP card supports 2x mode (faster)	
OnChip USB	Disabled		
	Enabled	Enable if you use a separate USB controller card	Default
USB Keyboard Support	Disabled		Default
	Enabled	Enabled if you use an USB Keyboard.	
Spread Spectrum Modulated	Disabled	Use the default setting	Default
	Enabled	When using Spread Spectrum Modulated 1.5% or 6% for FCC or DOC testing.	
	V	Show the current voltage	

3-4 POWER MANAGEMENT SETUP

The [POWER MANAGEMENT SETUP] sets the system's power
saving functions.

```
                    ROM PCI/ISA BIOS
               POWER MANAGEMENT SETUP
                  AWARD SOFTWARE, INC.
ACPI function        : Disabled      Primary INTR         : ON
Power Management     : User Define   IRQ3 (COM2)          : Primary
PM Control by APM    : Yes           IRQ4 (COM1)          : Primary
Video Off Option     : Suspend ->Off IRQ5 (LPT2)          : Primary
Video Off Method     : V/H SYNC+ Blank IRQ6 (Floppy Disk) : Primary
Modem Use IRQ        : 3             IRQ7 (LPT1)          : Primary
Sof-Off by PWR-BTTN  : Instant – Off IRQ8 (RTC Alarm)     : Disabled
     ** PM Timers **                IRQ9 (IRQ2 Redir)    : Secondary
HDD Power Down       : Disabled      IRQ10 (Reserved)     : Secondary
Doze Mode            : Disabled      IRQ11 (Reserved)     : Secondary
Suspend Mode         : Disabled      IRQ12 (PS/2 Mouse)   : Primary
     ** PM Events **                IRQ13 (Coprocessor)  : Primary
VGA                  : OFF           IRQ14 (Hard Disk)    : Primary
LPT & COM            : LPT/COM       IRQ15 (Reserved)     : Disabled
HDD & FDD            : ON
DMA/ master          : OFF           ESC  : Quit      ↑↓→← : Select Item
Modem Ring Resume    : Disabled      F1   : Help      PU/PD/+/- : Modify
RTC Alarm Resume     : Disabled      F5   : Old Values (Shift) F2 : Color
                                     F6   : Load BIOS Defaults
                                     F7   : Load Setup Defaults
```

After you have completed the Power Management Setup, press
[Esc] to return to the Main Menu.

3-4.1 Power Management Controls

Power Management Controls	Setting	Description		Note
ACPI function	Disabled			Default
	Enabled	Enabled if you use Windows 98 and want to use ACPI		
Power Management	User Define	Lets you define the HDD and system power down times.		
		Doze timer	Standby timer	Suspend timer
	Min Saving	40 Min	40 Min	40 Min
	Max Saving	20 Sec	20 Sec	20 Sec
PM Control by APM	Yes	To use Advanced Power Management (APM) you must run [power.exe] under DOS V6.0 or later version.		Default
	No			
Video Off Option	Suspend ->Off	The monitor will be switched off in suspend mode,		Default
	All Modes ->Off	the monitor will be switched off in all power saving modes		
	Always On			
Video Off Method	V/H SYNC+Blank	Selects the method by which the monitor is blanked.		Default
	Blank screen			
	DPMS Supported			
Modem Use IRQ	3	Assigns an IRQ# to the modem device.		Default
	3-11, NA			
Soft-Off by PWRBTN	Instant - Off	Select the Power Button Mode. Instant – Off : One push off. Delay 4 Sec : Push for 4s to switch off.		Default
	Delay 4 Sec			

3-4.2   PM Timers

PM Timers	Setting	Description	Note
HDD Power Down	Disable		Default
	1-15Min	When the set time has elapsed, BIOS sends a command to the HDD to power down. This turns off the HDD motor.	Some older model HDDs may not support this advanced function.

The following [Doze Mode] field may be configured only if [Power Management] is set to [User Define]

Doze Mode	Disable		Default
	10sec-1Hour	When the set time has elapsed, BIOS sends a command to the system to enter Doze Mode.	System clock drops to 33MHz.

The following [Suspend Mode] field may be configured only if [Power Management] is set to [User Define]

Suspend Mode	Disable		Default
	10sec-1Hour	In Suspend mode, the CPU stops completely (no instructions are executed.)	Only an SL-Enhanced (or SMI) CPU can enter this mode.

3-4.3 PM Events

PM Events	Setting	Description	Note
VGA	ON	Enabled the power managemnet.	
	OFF		Default
LPT & COM	LPT/COM	Enabled the power management timer.	Default
	COM LPT NONE		
HDD & FDD	ON	Enabled the power management timers when the event is detected on the Hard Disk Drive and Floppy Disk Drive device.	Default
	OFF		
DMA/master	ON	The system will not have SIM signal until the master is finished while the master is working.	
	OFF		Default
Modem Ring Resume	Disabled	Only work when the computer is powered on. The system will resume active when modem is ringing.	Default
	Enabled	The system will not resume when modem is ringing.	
RTC Alarm Resume	Disabled	The system ignores the alarm.	Default
	Enabled	Set alarm to wake up the system either by the date (1-31) or time (hh:mm:ss), and if the date is set to 0, it means that the system will wake up by the alarm everyday.	
Primary INTR	ON	Use the default setting.	Default
	OFF		

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PM Events (Continued)

PM Events	Setting	Description	Note
IRQ#	Primary	IRQ3(COM2), IRQ4(COM1), IRQ5(LPT2), IRQ6(Floppy Disk), IRQ7(LPT1), IRQ12(PS/2 mouse), IRQ13(Coprocessor), IRQ14(HardDsik)	
	Secondary	IRQ9(IRQ2 Redir), IRQ10(Reserved), IRQ11(Reserved)	
	Disabled	IRQ8 (RTC Alarm), IRQ15 (Reserved)	

3-5 PNP/PCI CONFIGURATION SETUP

This option sets the mainboard's PCI Slots.

ROM PCI/ISA BIOS		
PNP/PCI CONFIGURATION SETUP		
AWARD SOFTWARE, INC.		

PNP OS Installed	: No	CPU to PCI Write Buffer : Enabled
Resources Controlled By	: Manual	PCI Master Broken Timer : Disabled
ACPI I/O Device Node	: Disabled	PCI IRQ Actived By : Level
IRQ-3 assigned to	: Legacy ISA	Assign IRQ For USB : Enabled
IRQ-4 assigned to	: Legacy ISA	Assign IRQ For VGA : Enabled
IRQ-5 assigned to	: PCI/ISA PnP	Assign IRQ For ACPI : IRQ10
IRQ-7 assigned to	: PCI/ISA PnP	
IRQ-9 assigned to	: PCI/ISA PnP	
IRQ-10 assigned to	: PCI/ISA PnP	
IRQ-11 assigned to	: PCI/ISA PnP	
IRQ-12 assigned to	: PCI/ISA PnP	
IRQ-14 assigned to	: PCI/ISA PnP	
IRQ-15 assigned to	: PCI/ISA PnP	
DMA-0 assigned to	: PCI/ISA PnP	ESC : Quit ↑↓ → ← : Select Item
DMA-1 assigned to	: PCI/ISA PnP	F1 : Help PU/PD/+/- : Modify
DMA-3 assigned to	: PCI/ISA PnP	F5 : Old Values (Shift) F2 : Color
DMA-5 assigned to	: PCI/ISA PnP	F6 : Load BIOS Defaults
DMA-6 assigned to	: PCI/ISA PnP	F7 : Load Setup Defaults
DMA-7 assigned to	: PCI/ISA PnP	

Note: Starred (*) items will disappear when the [Resources Controlled By] option is set to [Auto].

After you have completed the PCI Slot Configuration, press [Esc] and follow the instructions on your screen to save your settings or exit without saving.
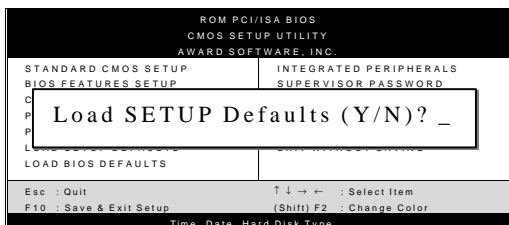
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3-5.1 PNP/PCI Configuration Controls

PNP/PCI Controls	Setting	Description	Note
PNP OS Installed	Yes	Use the default setting	Disabled
	NO		
Resources Controlled By	Manual	BIOS does not manage PCI/ISA PnP card IRQ assignment.	
		Requires to assign IRQ-# and DMA-# to PCI or ISA PnP manually.	
		IRQ-3,4,5,7,9,10,11,12,14,15 assigned to: _	
		DMA-0,1,3,5,6,7 assigned to: _	
	Auto	The Plug-and-Play BIOS auto manages PCI/ISA PnP card IRQ assignment automatically.	**Recommended**
Reset Configuration Data	Disabled	Retain PnP configuration data in BIOS.	Default
	Enabled	Reset PnP configuration data in BIOS.	
ACPI I/O Device Node	Disabled	Use the default setting	Default
	Enabled		

3-5.2 PNP/PCI Configuration Setup

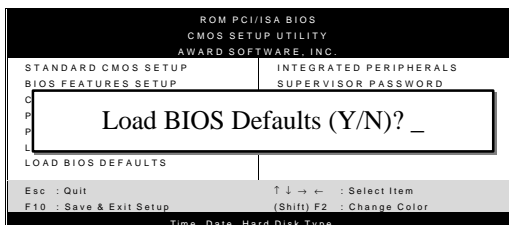| PNP/PCI Setup	Setting	Description	Note
If [Resources Controlled By] is set to [Manual]			
IRQ-# and DMA-# assigned to:	PCI/ISA PnP	Choose IRQ-# and DMA-# assigned to PCI/ISA PnP card.	IRQ-3,4,5,7,9,10, 11,12,14,15 DMA-0,1,3,5,6,7
	Legacy ISA	Choose IRQ-# and DMA-# assigned to Legacy ISA card.	IRQ-3,4,5,7,9,10, 11,12,14,15 DMA-0,1,3,5,6,7
CPU to PCI write Buffer	Disabled		
	Enabled	Enable buffering of CPU writes to the PCI bus, the CPU will not have to wait.	Default
PCI Master Broken Timer	Disabled		Default
	Enabled	Enable to allow for slow PCI masters.	
Assign IRQ For USB	Disabled		
	Enabled	Enable RSB IRQ	Default
Assign IRQ For VGA	Disabled		
	Enabled	Enable if your VGA card needs an interrupt.	Default
Assign IRQ For ACPI	IRQ10 IRQ11 IRQ9	If you enable ACPI on your system, set this item to a free interrupt for ACPI to use.	**Default**

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3-6 LOAD SETUP DEFAULTS

Select the [LOAD SETUP DEFAULTS] option from the Main Menu to load the system values you have previously saved. This option is recommended if you need to reset the system setup and to retrieve the old values.

```
                 ROM PCI/ISA BIOS
                CMOS SETUP UTILITY
               AWARD SOFTWARE, INC.
  STANDARD CMOS SETUP          INTEGRATED PERIPHERALS
  BIOS FEATURES SETUP          SUPERVISOR PASSWORD
  C
  P   Load SETUP Defaults (Y/N)? _
  P
  L
  LOAD BIOS DEFAULTS

  Esc  : Quit                  ↑ ↓ → ←   : Select Item
  F10  : Save & Exit Setup     (Shift) F2  : Change Color
                 Time, Date, Hard Disk Type…
```

Type [Y] to use the Setup Defaults followed by [Enter] or otherwise [N] to return to the Main Menu and keep current values.

3-7 LOAD BIOS DEFAULTS

Select the [LOAD BIOS DEFAULTS] option from the Main Menu to load the system default values. BIOS Defaults values are adjusted to yield high performance.

```
                 ROM PCI/ISA BIOS
                CMOS SETUP UTILITY
               AWARD SOFTWARE, INC.
  STANDARD CMOS SETUP          INTEGRATED PERIPHERALS
  BIOS FEATURES SETUP          SUPERVISOR PASSWORD
  C
  P   Load BIOS Defaults (Y/N)? _
  P
  L
  LOAD BIOS DEFAULTS

  Esc  : Quit                  ↑ ↓ → ←   : Select Item
  F10  : Save & Exit Setup     (Shift) F2  : Change Color
                 Time, Date, Hard Disk Type…
```

Type [Y] to use the Setup Defaults followed by [Enter] or otherwise [N] to return to the Main Menu and keep current values.

> 🛑 ***Warning:*** If you run into any problems after loading BIOS DEFAULTS, please load the SETUP DEFAULTS for stable performance.

3-8 INTEGRATED PERIPHERALS

🛑 *Caution:* Change these settings only if you are already familiar with the Chipset.

The [INTEGRATED PERIPHERALS] option changes the values of the chipset registers. These registers control the system options in the computer.

The following screen shows default settings.

```
                          ROM PCI/ISA BIOS
                       INTEGRATED PERIPHERALS
                        AWARD SOFTWARE, INC.
OnChip IDE First Channel   : Enabled   Onboard Parallel Port    : 378
OnChip IDE Second Channel  : Enabled   Parallel Port Mode       : Normal
IDE Prefetch Mode          : Enabled   ECP Mode Use DMA         : 3
IDE HDD Block Mode         : Enabled   Parallel Port EPP Type   : EPP1.9
IDE Primary Master PIO     : Auto
IDE Primary Slave PIO      : Auto
IDE Secondary Master PIO   : Auto
IDE Secondary Slave PIO    : Auto
IDE Primary Master UDMA    : Auto
IDE Primary Slave UDMA     : Auto
IDE Secondary Master UDMA  : Auto
IDE Secondary Slave UDMA   : Auto
Init Display First         : PCI Slot  ESC  : Quit        ↑↓→←    : Select Item
                                       F1   : Help        PU/PD/+/-  : Modify
Onboard FDC Controller     : Enabled   F5   : Old Values  (Shift) F2  : Color
Onboard UART 1             : 3F8/IRQ4  F6   : Load BIOS Defaults
Onboard UART 2             : 2F8/IRQ3  F7   : Load Setup Defaults
Onboard UART 2 Mode        : Standard
```

The following tables describe each field in the INTEGRATED PERIPHERALS Menu and provide instructions on how to configure the IDE controls, FDC controls, and the onboard serial and parallel ports.

3-8.1 IDE Device Controls

IDE Controls	Setting	Description	Note
Onchip IDE Primary Channel	Disabled	Use the On-board IDE Channel	
	Enabled		Default
Onchip IDE Second Channel	Disabled	Turn off the On-board IDE Channel	
	Enabled		Default
IDE Prefetch Mode	Disabled		
	Enabled	Enable to enhance system performance.	Default
IDE HDD Block Mode	Disabled		
	Enabled	Invokes multi-sector transfer instead of one sector per transfer. Not all HDDs support this function.	Default
The following fields may be configured only if [Internal PCI/IDE] is set to [Both], [Primary], or [Secondary].			
IDE ➢ **Primary Master PIO** ➢ **Primary Slave PIO** ➢ **Secondary Master PIO** ➢ **Secondary Slave PIO**	Mode 0-4	0 is the slowest speed 4 is the fastest speed	
	Auto	For better performance and stability, we suggest you use the Auto setting to set the HDD control timing.	Default
IDE ➢**Primary Master UDMA** ➢**Primary Slave UDMA** ➢**Secondary Master UDMA** ➢**Secondary Slave UDMA**	Disabled		
	Auto	Select Auto to enable Ultra DMA Mode support.	Default
The following field may be configured only if [Internal PCI/IDE] is set to [Both], [Primary], or [Secondary].			
Init Display First	PCI Slot	Select the VGA card that connects to the primary monitor.	Default
	AGP		

3-8.2 FDC Controls

FDC Controls	Setting	Description	Note
Onboard FDC controller	Disabled	Turn off the on-board floppy controller	
	Enabled	Use the on-board floppy controller	Default

3-8.3 Onboard Serial Ports

Onboard Serial Ports	Setting	Description	Note
Onboard UART 1	Disabled		
Onboard UART 2	3F8/IRQ4	Choose serial port 1 & 2's I/O address.	Default (port 1)
	2F8/IRQ3	Do not set port 1 & 2 to the same address	Default (port 2)
	3E8/IRQ4	except for Disabled or	
	2E8/IRQ3	Auto.	
	Auto		
Onboard UART 2 Mode	Standard	Supports a serial infrared IrDA.	Default
	HPSIR	Supports HP serial infrared interface format.	
	ASKIR	Supports a Sharp serial interface format.	

3-8.4 Onboard Parallel Ports

IR Pins Controls	Setting	Description	Note
IR Duplex mode	Half	Select the IR mode	Default
	Full	your IR module supports	
Use IR Pins	IR-RX2TX2		Default
	IR-RX TX		

3-8.5 Onboard Parallel Ports

Onboard Parallel Ports	Setting	Description	Note
Onboard Parallel Port	378	Choose the printer I/O address.	Default
	Disabled		
	3BC		
	278		
Parallel Port Mode	ECP + EPP	The mode depends on your external device that connects to this port.	
	Normal	Default
	EPP		
	ECP		
If [Parallel Port Mode] is set to [ECP] or [ECP+EPP].			
ECP Mode Use DMA	3	Choose DMA3	Default
	1	Choose DMA1	
If [Parallel Port Mode] is set to [EPP] or [ECP+EPP].			
Parallel Port EPP Type (EPP Version)	EPP1.9	Choose EPP Ver. 1.9	Default
	EPP1.7	Choose EPP Ver. 1.7	

3-9 SUPERVISOR PASSWORD

Based on the setting you have made in the [Security Option] of the [BIOS FEATURES SETUP] section, the password prevents access to the system or the setup program by unauthorized users. Follow this procedure to set a new password or disable the password:

1. Choose [BIOS FEATURES SETUP] in the Main Menu and press [Enter]. Select the [Security Options] item and set the field to:
    a. [System]: The password is required every time the system is booted. This means only a person who knows the password can use this computer.
    b. [Setup]: The password is required only when you attempt to enter the BIOS Setup program.

2. Choose [SUPERVISOR PASSWORD] from the Main Menu and press [Enter]. The following prompt appear:

> Enter Password:

Warning: If you forget or lose the password, the only way to access the system is to set jumper JP5 to clear the CMOS RAM. All setup information is lost and you must run the BIOS setup program again.

Note: If you do not wish to use the password function, press [Enter] directly and the following message appears:

> Password Disabled!!

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3. Enter your new password and press [Enter]. The following
    message appears, prompting to confirm the new password:

    ┌─────────────────────────────┐
    │   Confirm Password: │
    └─────────────────────────────┘

4. Re-enter your password and then press [Enter] to exit to the
    Main Menu.

This diagram outlines the password selection procedure:
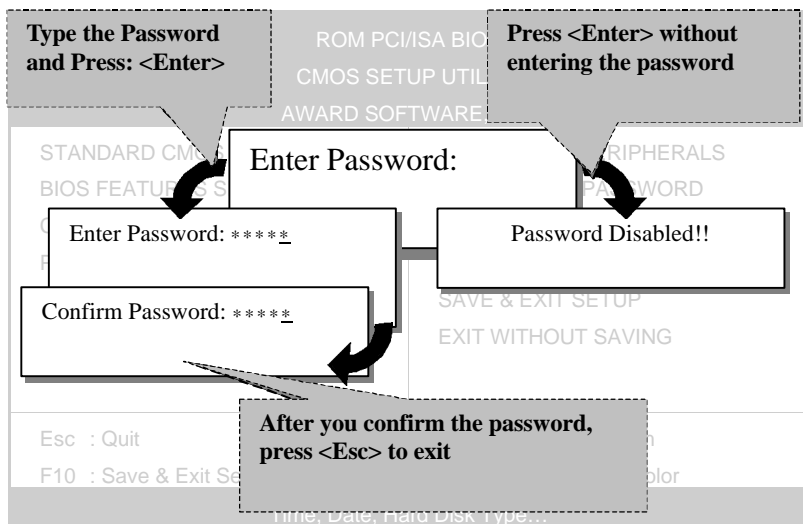
3-10 USER PASSWORD

When the user password option is on, you are not allowed to change
any setting in the [CMOS SETUP UTILITY] except for changing the
user's password.

The password setting procedure is similar to that for the
[SUPERVISOR PASSWORD] (Refer to section 3-9).

3-11 IDE HDD AUTO DETECTION

This Main Menu function automatically detects the hard disk type and configures the STANDARD CMOS SETUP accordingly.

```
                       ROM PCI/ISA BIOS
                      CMOS SETUP UTILITY
                     AWARD SOFTWARE, INC.

HARD DISKS          TYPE    SIZE   CYLS  HEAD  PRECOMP  LANDZ  SECTOR  MODE
Primary Master   :  AUTO     0      0     0       0       0       0    AUTO
Primary Slave    :  None     0      0     0       0       0       0    - - - -
Secondary Master :  None     0      0     0       0       0       0    - - - -
Secondary Slave  :  None     0      0     0       0       0       0    - - - -

                  ┌─────────────────────────────────────┐
                  │  Do you accept this drive C (Y/N)? _ │
                  └─────────────────────────────────────┘

                          ESC :  Skip
```

Note: This function is only valid for IDE type of hard disk drives.

Chapter 4

DRIVERS INSTALLATION

Your SY-5EHM/5EH5 Super 7 ™Mainboard comes with a CD-ROM labeled "SOYO CD." The SOYO CD contains the user's manual file for your new Mainboard, the drivers software available for installation, and a database in HTML format with information on SOYO Mainboards and other products.

Step 1. Insert the SOYO CD into the CD-ROM drive
The SOYO CD will auto-run, and the SOYO CD Start Up Menu will display as shown below.
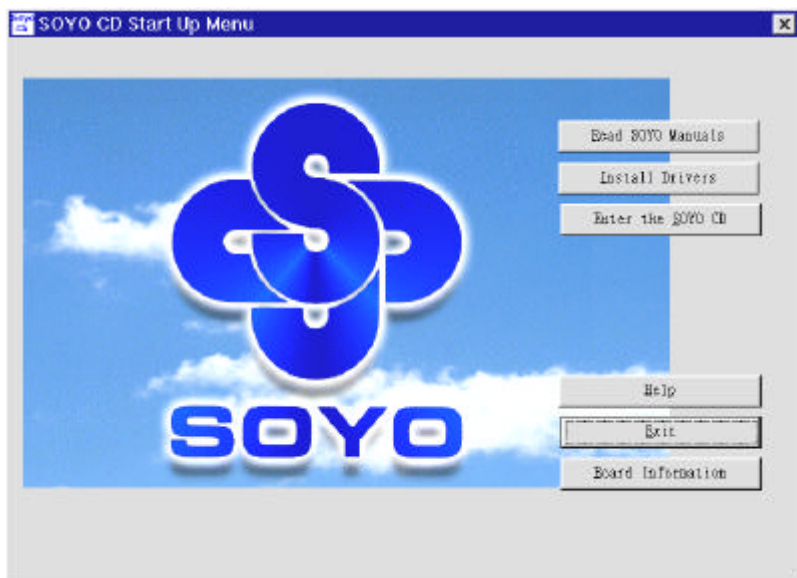
(SOYO CD Start Up Program Menu)

The SOYO CD Start Up Program automatically detects which SOYO Mainboard you own and displays the corresponding model name.

Step 2. Iinstallation procedure for Windows 95/98

The following describes the best way of installing Windows 95 or Windows 98 on your 5EHM/5EH5 mainboard:

➢   The following BIOS default settings should not be changed:
1. The 'USB Controller' item under 'Chipset features' is set to enabled.
2. The 'USB Assigned IRQ' item under 'PnP/PCI Configuration is set to enabled.

You MUST have these two items enabled for Windows 95/98 to run properly on your
        system.

➢   Install Windows 95/98
➢   After installation of windows, you will need to install the ETEQ drivers. Follow the
       instruction below.

Click the **Install Drivers** button to display the list of drivers that can be installed on your mainboard. The start-up program displays the drivers available for the 5EHM/5EH5 and the Windows version you use. For Windows 95 four drivers will be listed (see 'Driver Installation Menu' below), for Windows 98 three drivers will be listed (the ACPI drivers will be left out). We recommend you to install all drivers, and to do so in the right sequence (top to bottom).

If you want to see all the drivers available on the SOYO –CD, click the **Display all drivers on the SOYO CD** button. Do NOT install drivers that are not suitable for you board, otherwise your system may crash.

(Driver Installation Menu)

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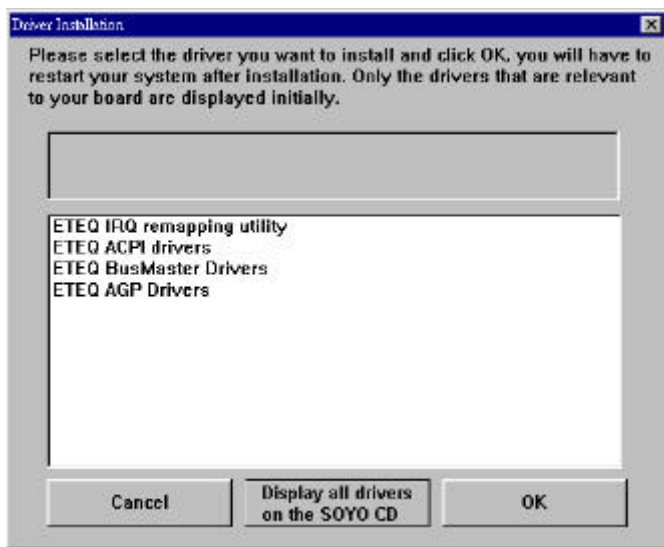
Select which driver you want to install and click *OK,* or click *Cancel* to return to the main menu. When the installation program of a driver starts running the SOYO-CD will exit. After finishing the installation, restart the SOYO-CD and install the next driver.

Note: Once you have selected a driver, the system will automatically exit the SOYO CD to begin the driver installation program. When the installation is complete, most drivers require to restart your system before they can become active.

American Megatrends   AMIBIOS (C) 1994 American Megatrends Inc.

BIOS Release 123112994

16000KB OK

WAIT........
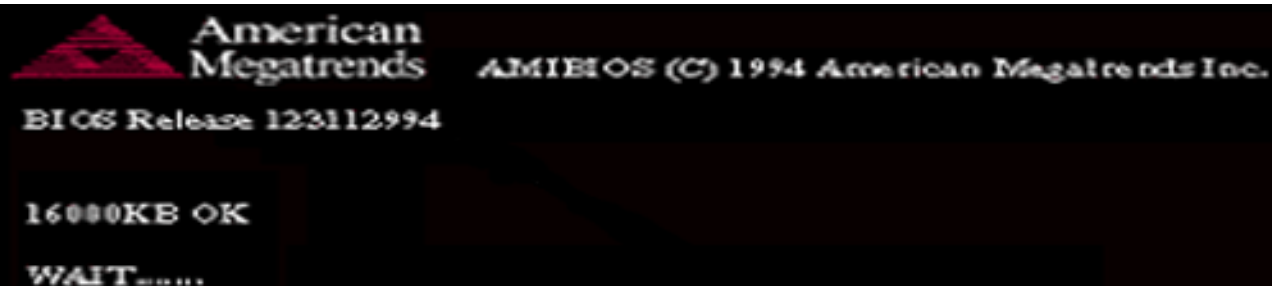
Il BIOS

Il BIOS (Basic Input/Output System) è un componente fondamentale dell'architettura di un computer in quanto, oltre a gestire la fase di avvio, assicura la comunicazione fra il livello il hardware e quello software. Per questa ragione è importante prestare attenzione alla corretta configurazione dei parametri di funzionamento, comprendere i codici e i messaggi generati in caso di errore, conoscere le procedere per il suo aggiornamento.

Prima esercitazione: identificazione del BIOS
Le procedure per individuare il costruttore del BIOS e la sua versione possono essere ridotte a due:

1. Osservare la schermata di avvio (interrompere il flusso delle informazioni premendo il tasto Pausa).
Procedura di riconoscimento del BIOS AMI (Testo in inglese)
Procedura di riconoscimento del BIOS AMI (Testo in italiano)
Procedura di riconoscimento del BIOS AWARD (Testo in italiano)

2. Utilizzare un programma di diagnostica (es. BIOS Agent)

Oltre a queste informazione è fondamentale conoscere il costruttore e il modello della scheda madre in quanto è dal sito di quest'ultimo che conviene scaricare il file per l'aggiornamento del BIOS e il manuale per la sua configurazione.

Individua il BIOS del tuo computer (costruttore e versione), poi dal sito del produttore della scheda madre scarica

l'aggiornamento del BIOS e la guida alla configurazione dei parametri.

Seconda esercitazione: configurazione dei parametri
Per accedere al programma di configurazione del BIOS è necessario premere uno o più tasti quando ha inizio la procedura di avvio del computer (questa informazione è generalmente mostrata a video).
Le opzioni di configurazione sono molteplici: alcune sono intuitive e facili da impostare, altre richiedono una maggiore attenzione perché l'inserimento di valori sbagliati può essere causa di malfunzionamenti. Il principale riferimento per la configurazione dei parametri del BIOS è il manuale fornito a corredo della scheda madre e reperibile in Internet nel sito del produttore. Poiché questa documentazione generalmente è in inglese, per una prima comprensione dei parametri si può fare riferimento a queste guide di carattere generale:

Ottimizzazione del BIOS
Parametri di funzionamento dei moduli di memoria
Setup delle schede madri con BIOS AMI

Accedi al BIOS del computer e controlla le diverse possibilità di configurazione offerte dai principali parametri. Ricordati di non salvare le impostazioni in uscita :-)

Terza esercitazione: Codici di errore
In caso di errori nella fase di POST (Power On Self Test) il BIOS segnala i malfunzionamenti con messaggi a video o segnali sonori (beep). La comprensione di questi codici di errore è importante per la diagnostica dei malfunzionamenti.

Riconoscere l'errore dal beep del bios! (testo in italiano)
Award BIOS Beep Codes (testo in inglese)
AMI BIOS Beep Codes (testo in inglese)
I codici di errore (testuali e sonori) di altri produttori possono

essere reperiti dalla home page del sito BIOS CENTRAL.

Verifica alcuni di questi messaggi di errore avviando il PC senza: la scheda video; la memoria; la tastiera.

Quarta esercitazione: aggiornare il BIOS (per i più esperti)
Le schede madri più recenti dispongono di wizard che facilitano e rendono sicura la procedura di aggiornamento del BIOS (rilevamento della scheda madre, della versione installata, ripristino in caso di fallimento) e che possono essere eseguiti senza uscire dal sistema operativo.
Nelle scheda madri più datate, invece, l'aggiornamento BIOS richiede esperienza e cautela ed è consigliabile effettuare sempre il backup della versione che si vuole sostituire.
Normalmente il file prelevato dal sito del produttore della scheda madre contiene il firmware (file in formato binario riconoscibile dall'estensione .bin) e il software necessario per procedere all'aggiornamento (un eseguibile).
Per procedere all'aggiornamento è necessario avviare il computer da un dischetto.
Una volta portata a termine la procedura è necessario riavviare il PC e procedere alla personalizzazione dei parametri di configurazione.
Se la procedura di aggiornamento non riesce è possibile che la FLASH del BIOS sia protetta da scrittura. La protezione può essere rimossa o dal Setup del BIOS, o rimuovendo un contatto sulla scheda madre per azzerare i parametri del CMOS.

Segui questa procedura per effettuare l'aggiornamento.

Torna alla prima pagina

Procedura per aggiornare il BIOS

1. Scarica dal sito del produttore della scheda madre l'aggiornamento del BIOS e l'utility di aggiornamento.
2. Riavvia il sistema. Se la scheda madre supporta l'avvio dell'utility di l'aggiornamento, premi la combinazione di tasti indicata durante la fase di POST (per le schede ASUS ALT + F1). Altrimenti, avvia il PC con un dischetto contenete il sistema operativo e successivamente lancia l'utility di aggiornamento. Comparirà una schermata in cui ti sarà richiesto di inserire il nome del file che contiene il nuovo BIOS (è meglio che questo file sia già presente sul dischetto).

3. Il programma ti chiederà se vuoi fare una copia di backup del vecchio BIOS. E' consigliabile rispondere di sì ed inserire un nome per salvarlo.

4. L'utility di aggiornamento procede alla verifica del nuovo BIOS e chiede di confermare la scrittura. Durante la fase di scrittura del nuovo BIOS è importante che il PC non venga spento!

```
AwardBIOS Flash Utility V8.20A
(C)Phoenix Technologies Ltd. All Rights Reserved

For nVidia-nForce-A7N8X-X      DATE: 08/13/2002
Flash Type - PMC Pm49FL004T LPC/FWH

File Name to Program : aw0702.bin
           Checksum : DAD6H
Save current BIOS as : old.bin


Message:  Press 'Y' to Program or 'N' to Exit
```

4. Il programma ti chiederà se vuoi fare una copia di backup del vecchio BIOS.
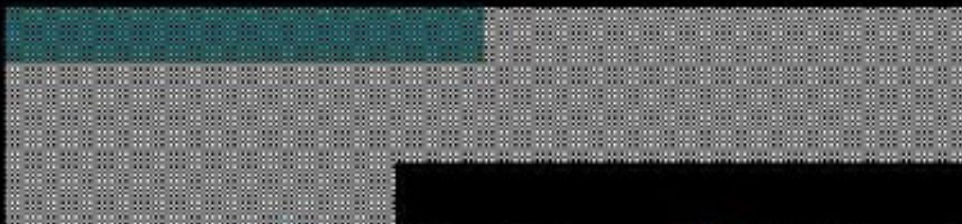
5. Durante la fase di scrittura del nuovo BIOS viene segnalato l'avanzamento del processo e, con un diverso colore, viene evidenziato lo stato dell'update. In questa fase è importante che il sistema non venga riavviato!

5. Quando la procedura è terminata si può riavviare il sistema premendo il tasto indicato dal programma.
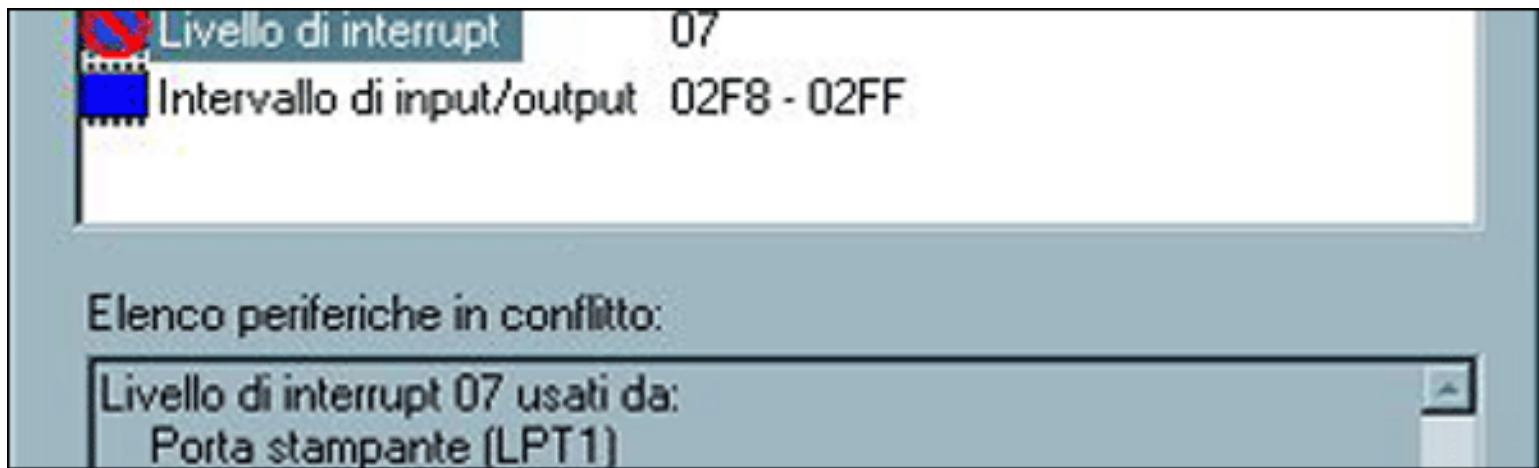
Conflitti fra le periferiche

L'installazione di un nuovo dispositivo può provocare un conflitto con altri già presenti nel sistema. Si tratta problemi nell'utilizzo delle risorse che vengono segnalati in "Gestione delle Periferiche" da un punto esclamativo.
Per risolvere il conflitto è necessario modificare le risorse che la periferiche utilizza. Tuttavia non è sempre possibile intervenire sui parametri che causano il conflitto, in quanto alcune periferiche possono utilizzare solo determinati intervalli di memoria e IRQ predefiniti. Quando è possibile rimuovere il conflitto bisogna ricordarsi di riavviare il sistema.

Un po' di teoria
Ogni dispositivo installato nel computer utilizza uno o più "canali" per comunicare con la CPU. Nel sistema Plug end Play gli indirizzi IRQ, DMA, I/O, e gli indirizzi di memoria sono assegnati dinamicamente all'accensione del PC.

IRQ (Interrupt Request - Richiesta di Interruzione)

L'IRQ è utilizzato da molti dispositivi per segnalare una richiesta alla CPU. Quando un dispositivo invia un segnale IRQ il processore interrompe ogni attività per occuparsi di quella richiesta. La maggior parte dei componenti di un PC, le schede di espansione e molte periferiche utilizzano gli IRQ.

Nel bus di un PC ci sono 16 IRQ ed ognuno può essere utilizzato ad un solo dispositivo alla volta. Tuttavia, poiché il loro numero è limitato rispetto alle necessità, da diverso tempo l'architettura delle scheda madri consente la condivisione dinamica degli IRQ. Ciò nonostante i conflitti nell'assegnazione degli IRQ rimangono una delle cause più frequenti di malfunzionamento.

DMA (Direct memory Access - Accesso Diretto alla Memoria)

Il canale DMA consente alle periferiche di utilizzare la memoria per scrivere e leggere senza impegnare la CPU che in questo modo puo' svolgere processi più importanti. I canali DMA son 8. Solo alcuni dispositivi fanno uso dei canali DMA.

Indirizzi Base (Porte Input/Output)

Le porte I/O sono il canale di comunicazione tra il software, i dispositivi del sistema e le periferiche. Due periferiche non possono utilizzare gli stessi indirizzi. Le porte I/O sono definite con indirizzi esadecimali.

Indirizzi di memoria

Rappresentano lo spazio nella memoria RAM destinato alla gestione di ciascuna periferica.

Prima esercitazione: verifica gli IRQ dei dispositivi installati

Il sistema di configurazione plug end paly ha cambiato la tradizionale assegnazione degli IRQ ai dispositivi realizzandola in modo dinamico. Per controllare le effettive assegnazioni degli interrupt è necessario consultare l'apposito controllo in "Gestione delle Periferiche".
Confronta gli IRQ usati dai tuoi dispositivi con la tabella delle assegnazioni standard. Verifica come alcune di queste siano immodificabili perché assegnate dal sistema. Quando è possibile prova a modificare le impostazioni correnti facendo attenzione alla segnalazione di eventuali conflitti. Ricordati di NON salvare le modifiche!
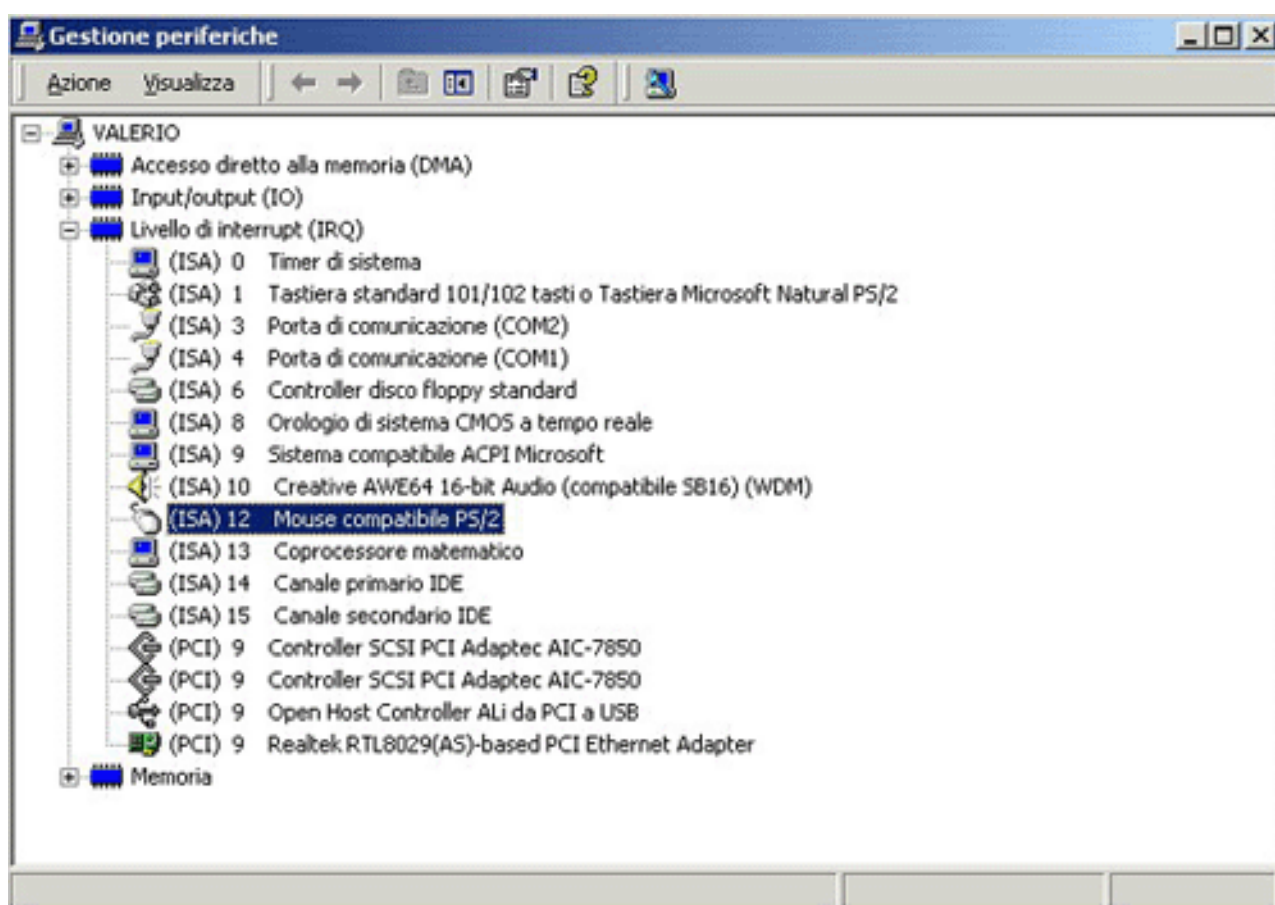
Seconda esercitazione: disabilitazione da BIOS
Alcuni interrupt sono disabilitabili da BIOS. Accedi al setup del BIOS e verifica la possibilità di disabilitare le porte seriali, la porta parallela, il mouse PS2). Ricordati di NON salvare le impostazioni in uscita.

Terza esercitazione: assegnazione dei canali DMA

Utilizza "Gestione delle Risorse" per visualizzare l'assegnazione dei canali DMA. La scheda audio, il controller del floppy, la porta stampante ECP (LPT1) sono alcuni dei dispositivi che fanno uso dei canali DMA.
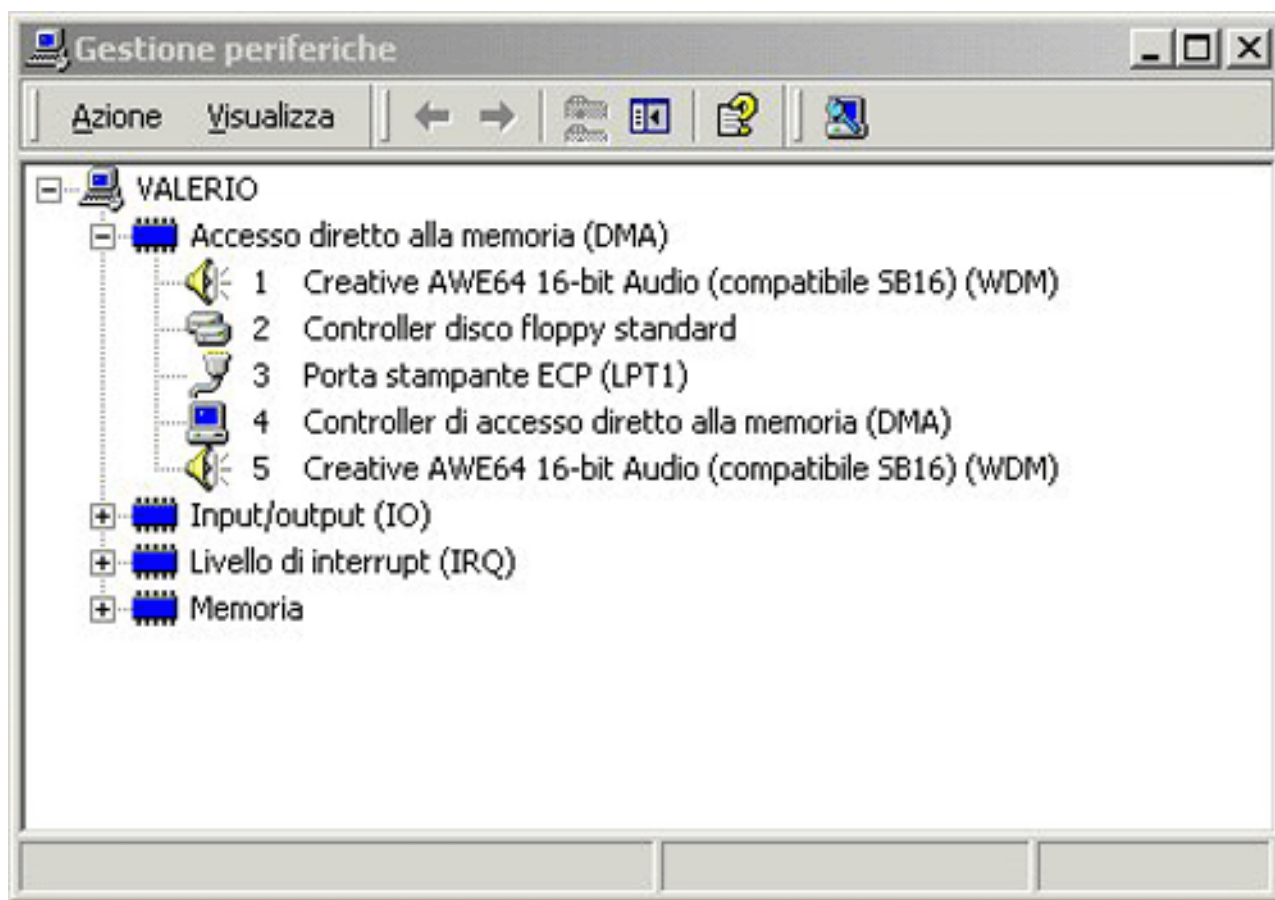
Quarta esercitazione: assegnazione delle porte I/O
Utilizza "Gestione delle Periferiche" per visualizzare gli indirizzi delle porte Input/Output utilizzate dalla tua scheda madre. Come è facile notare le porte I/O in realtà sono degli intervalli di indirizzi. E' abbastanza raro che vi siano conflitti in queste impostazioni.

Quinta esercitazione: assegnazione degli intervalli di memoria
Utilizza "Gestione delle Periferiche" per visualizzare gli intervalli di memoria assegnati ai dispositivi.

Torna alla prima pagina

TABELLA DEGLI IRQ		
IRQ	**FUNZIONE/DISPONIBILITA'**	**NOTE**
IRQ 0	Timer di sistema	NON MODIFICABILE
IRQ 1	Tastiera	NON MODIFICABILE
IRQ 2	Utilizzato dal secondo controller (IRQ 8-15)	NON MODIFICABILE
IRQ 8	Clock in tempo reale	NON MODIFICABILE
IRQ 9	Disponibile (reindirizzato sull'IRQ 2)	
IRQ 10	Disponibile	
IRQ 11	Disponibile	
IRQ 12	Mouse PS/2	
IRQ 13	Coprocessore matematico	NON MODIFICABILE
IRQ 14	Controller primario	
IRQ 15	Controller secondario	
IRQ 3	Porta seriale COM 2	
IRQ 4	Potar seriale COM1	
IRQ 5	Porta parallela LPT 2; scheda audio	
IRQ 6	Controller floppy disk	
IRQ 7	Porta parallela LPT 1	

Nota: gli interrupt sono elencati per priorità. Poiché il secondo controller degli interrupt si collega a cascata sull'IRQ 2 del primo controller, gli IRQ da 8 a 15 hanno una priorità più alta rispetto agli IRQ da 3 a 7. Alcuni interrupt (porte seriali, parallela, mouse PS2, ecc.) sono disabilitabili da BIOS.
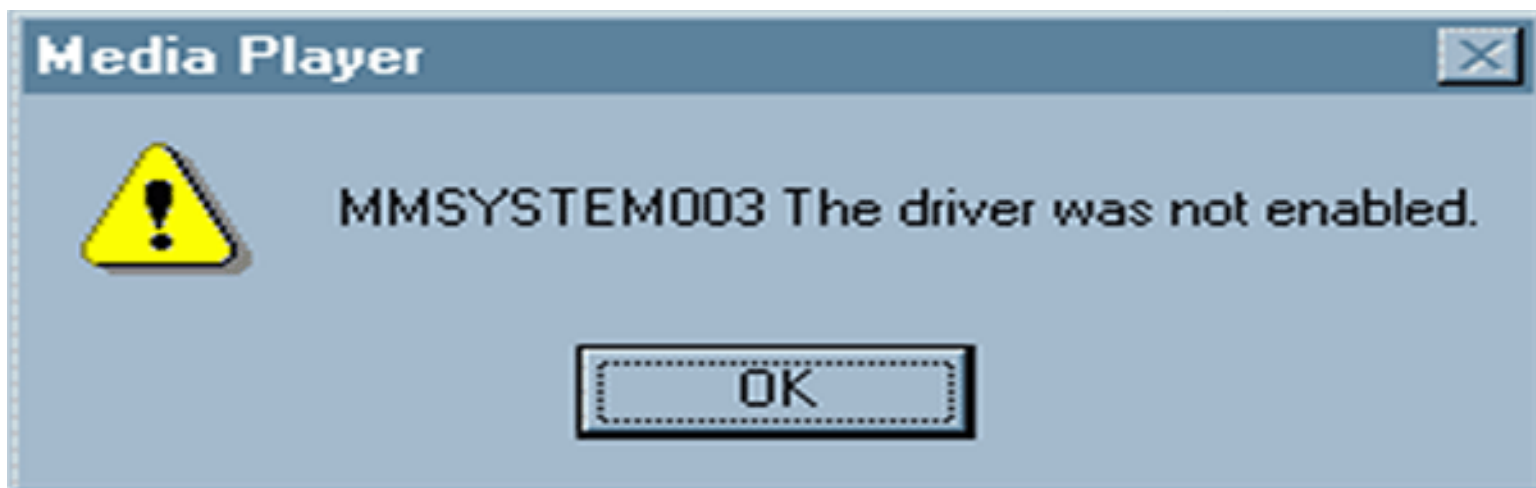
L'aggiornamento dei driver

Ogni dispositivo collegato al computer, sia esso un componente del sistema (schede di espansione, dischi, lettore CDROM, ecc.) o una periferica collegata ad una porta del PC (mouse, scanner, stampante, ecc.), per interagire con il sistema operativo deve essere controllato da un apposito software, il driver. Ad esempio, il driver del mouse traduce i movimenti e le azioni del mouse in comandi interpretabili dal sistema operativo.
Poiché le periferiche sono molteplici e i driver fanno riferimento alle loro specifiche modalità di costruzione e funzionamento, non è possibile disporre di driver di tipo universali. Pertanto ogni periferica, per funzionare correttamente, ha bisogno del proprio specifico driver. In alcuni casi un dispositivo può funzionare anche con un driver generico, ma in questo modo non si sfrutteranno tutte le sue potenzialità. Ad esempio, una scheda video installata senza il suo driver, potrà funzionare solo in modalità VGA standard (640x480 256 colori).
Ogni sistema operativo contiene un database abbastanza ampio di driver da consentire l'installazione dei dispositivi più comuni, tuttavia, è meglio fare riferimento a quelli forniti dal produttore a corredo dell'hardware o reperibili nel suo sito internet.
Normalmente la procedura di installazione dei driver avviene attraverso semplici procedure guidate. A volte però è necessario procedere manualmente.

Prima esercitazione: verifica l'esistenza di driver aggiornati

I driver, come qualsiasi altro software, sono soggetti ad aggiornamenti finalizzati a correggere eventuali errori presenti nelle precedenti versioni o a fornire il supporto per aggiornamenti del sistema operativo. Quando si acquista un dispositivo, soprattutto se di recente commercializzazione, è bene controllare se nel sito del produttore siano presenti driver più aggiornati rispetto a quelli che troviamo nella confezione.
Utilizzando "Gestione delle Periferiche" controlla la versione e la data del driver usato da un dispositivo (scheda video, di rete, ecc..) poi ricerca, nel sito del produttore se esiste una versione più aggiornata.
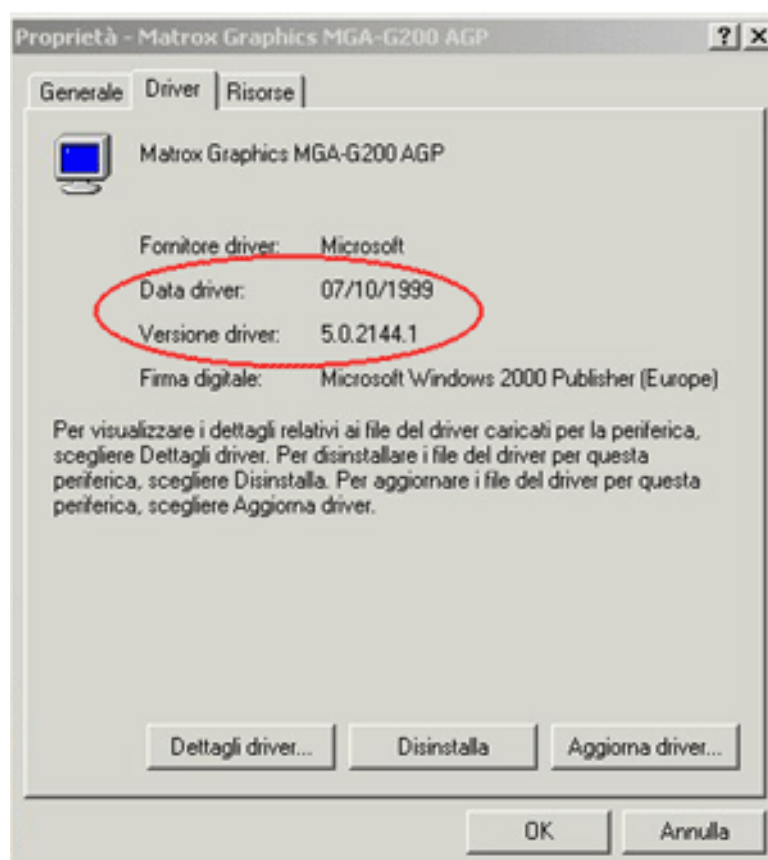
Utilizza il servizio fornito da WinTricks per accedere al sito web dei principali produttori hardware. Le procedure per accedere ai driver variano da produttore a produttore. Normalmente nella Home Page è necessario cercare l'opzione Supporto (Product support), selezionare la tipologia e il modello del dispositivo ed infine procedere al download.

Seconda esercitazione: verifica il dispositivo

Quando si ricerca un driver è importante sapere esattamente il codice del prodotto che stiamo cercando. Se il dispositivo non è stato correttamente installato le informazioni fornite da "Gestione delle Periferiche" non sono utilizzabili. In questo caso bisogna utilizzare un software di diagnostica o, meglio ancora, verificare le informazioni direttamente sul componente che si vuole installare. Nel caso si tratti di una scheda interna è bene aprire il PC e rimuoverla.

Non sempre risulta facile identificare il codice del prodotto. Se siamo in grado di individuare il produttore, allora si può verificare se nel sito Internet vengono fornite informazioni al riguardo. Altrimenti è necessario cercare un componente che ci permetta di risalire al produttore.

Nel primo esempio viene mostrato come, dopo aver individuato il produttore, sia possibile risalire alle informazioni che ci permettono di identificare il prodotto.

Nel secondo esempio viene mostrato come, identificando un componente, sia possibile risalire al produttore.

Terza esercitazione: backup dei driver

E' utile procedere all'archiviazione dei driver installati nel sistema per poterli ripristinare in caso di necessità. L'operazione di backup può essere facilitata dall'utilizzo di software specifico come "WinDriversBackup".

Il programma permette di salvare tutti i driver installati, un singolo driver, solo quelli non Microsoft, in quanto questi ultimi sono presenti nel sistema operativo.

Il programma ha alcune limitazioni in quanto non è in grado di recuperare tutte le informazioni relative ai driver che sono stati installati con procedure di setup.

Una guida sintetica all'utilizzo del programma è reperibile nel sito WinTricks.

Quarta esercitazione: raccolte di driver

Quando il dispositivo che vogliamo installare non è di recente fabbricazione può risultare difficile trovare i driver. O perché il produttore non supporta più il prodotto o perché non è più rintracciabile il fabbricante. In questi casi sono di grande aiuto le raccolte di driver che si possono reperire in Internet. Solitamente si tratta di archivi nei quali è possibile prelevare gratuitamente il software. A volte è necessario procedere ad una registrazione che quasi sempre è senza oneri. Se in questo modo si reperiscono i driver, si può tentare di rintracciarli utilizzando un motore di ricerca in Internet.

Utilizza alcuni dei seguenti archivi in Internet per reperire informazioni sui driver.

Driverguide (registrazione libera)

Driverzone

Driveritalia

Drivermania

Windrivers (registrazione a pagamento)

Torna alla prima pagina

DAL PRODUTTORE AL CODICE DEL PRODOTTO

1. Osservando questa scheda video si può facilmente risalire al produttore.
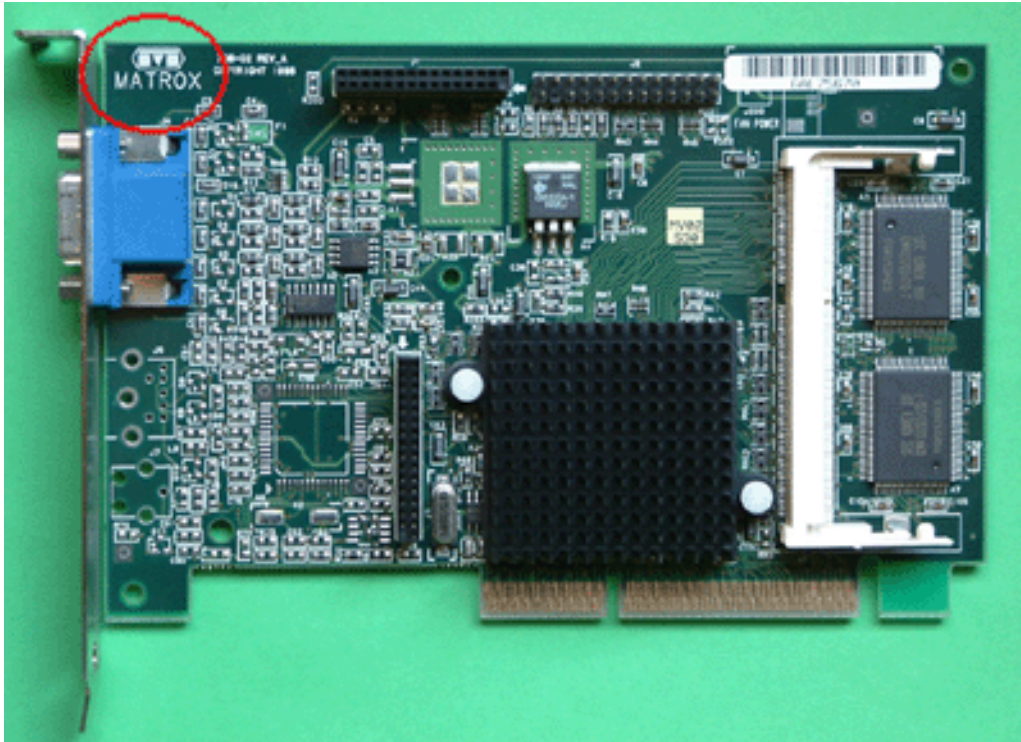
2. Nel sito Internet del produttore è possibile rintracciare le istruzioni per individuare il codice del prodotto.
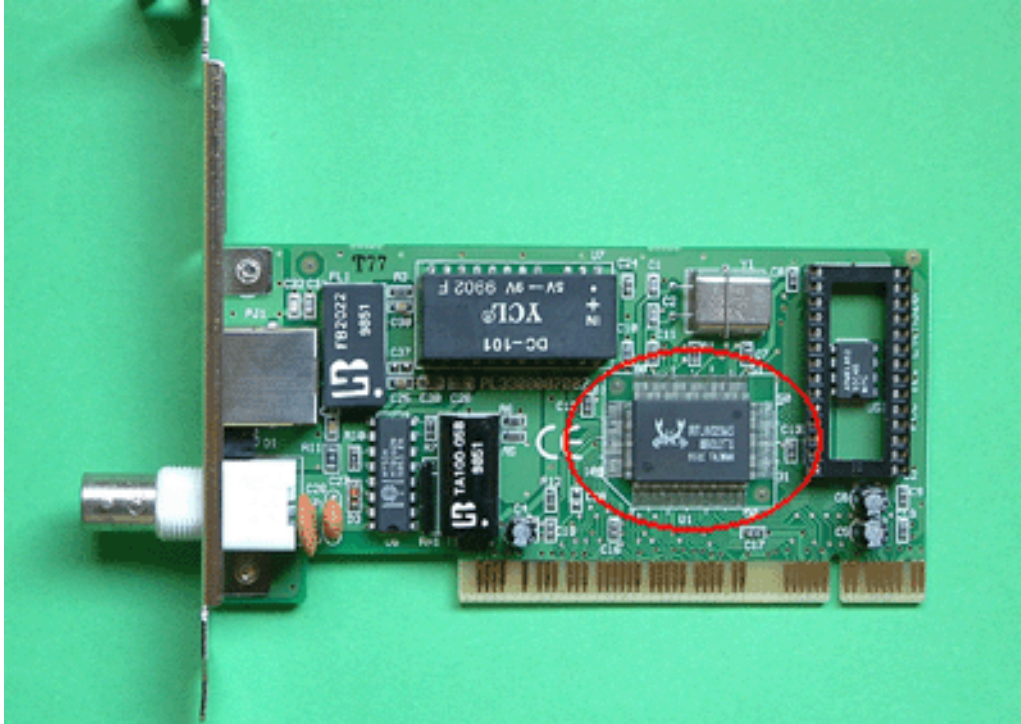

"Potete identificare il codice da un adesivo bianco posto sulla scheda"

3. Pertanto dovremo utilizzare i driver per la scheda Millenium G200.

DALL'IDENTIFICAZIONE DI UN COMPONENTE AL PRODUTTORE

1. Se non si riesce ad individuare il produttore della scheda si possono esaminare i suoi componenti.

2. Come è facile osservare questa scheda di rete utilizza il cipset RTL8029AS, uno dei più diffusi per le schede di rete prodotto dalla Realtek.

3. Dal sito della Realtek dovremo quindi scaricare i driver per le schede di rete RTL8029AS.
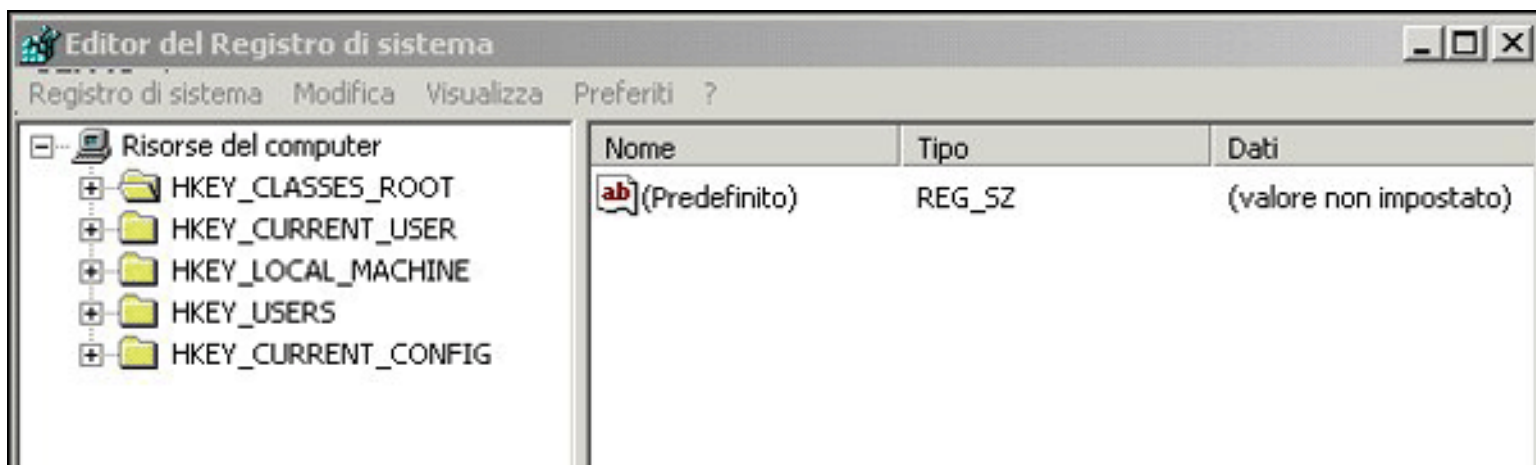
Il registro di sistema

Il "Registro di sistema" contiene le informazioni necessarie al funzionamento di Windows (informazioni su software, periferiche installate, profili degli utenti, personalizzazioni al sistema, ecc…). L'editor del registro è lo strumento che consente di visualizzare il contenuto del registro di sistema e di apportavi delle modifiche. Si avvia selezionando "Esegui" dal menu Start e scrivendo nella finestra di dialogo "regedit".
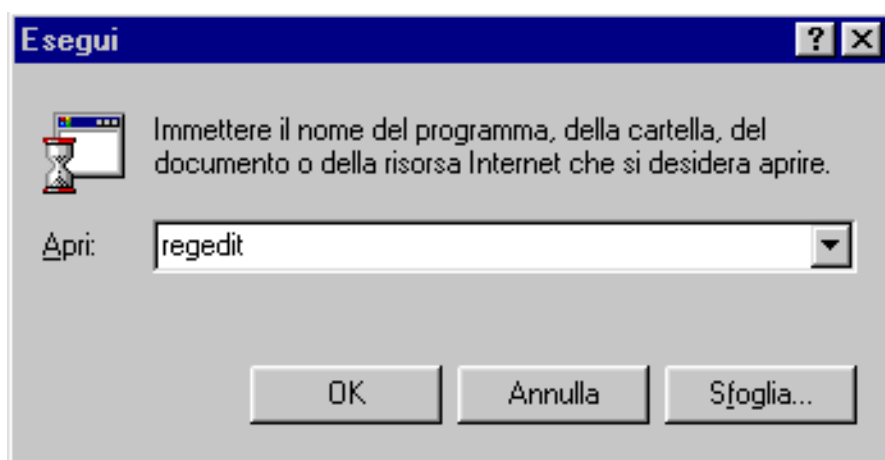
Il registro di sistema è organizzato in modo gerarchico. Ogni voce costituisce una "chiave", ogni chiave può contenere altre chiavi e informazioni che si chiamano "valori".

- HKEY_CLASSES_ROOT: principalmente le informazioni sui collegamenti per l'esecuzione dei programmi.
- HKEY_CURRENT_USER: informazioni sull'utente che sta utilizzando il sistema.
- HKEY_LOCAL_MACHINE: informazioni sull'hardware e il

software installati
- HKEY_USERS: informazioni sul desktop e le configurazioni relative agli utenti che utilizzano il computer.
- HKEY_CURRENT_CONFIG: informazioni sull'hardware corrente.
- HKEY_DYN_DATA: informazioni sui dispositivi plug and play.

Prima esercitazione: esegui il backup del registro di sistema
Prima di modificare il Registro di sistema è bene farne una copia. Procedi in questo modo:

- avvia l'editor del registro di sistema;
- seleziona la voce "esporta file del Registro…" del menu "Registro di sistema";
- scegli la cartella in cui memorizzare il file e salvarlo come "File di registro".

E' possibile anche esportare una singola chiave. Per ripristinare il registro basta scegliere l'opzione "Importa file del registro.." Il registro viene ripristinato anche facendo doppio clic sul file che ha estensione ".reg ".

In Windows 98 è possibile ripristinarne le informazioni anche con questa procedura: si avvia il computer in modalità DOS e si digita il comando c:\windows\scanreg /restore.

Seconda esercitazione: correggi gli errori nel registro di sistema
E' possibile correggere gli errori nel registro di configurazione utilizzando il programma RegClean, un utility della Microsoft per Windows 95, 98, Nt e 2000.
Dopo averlo scompattato in una cartella si troveranno tre file. Per avviare il programma basta fare doppio clic su RegClean.
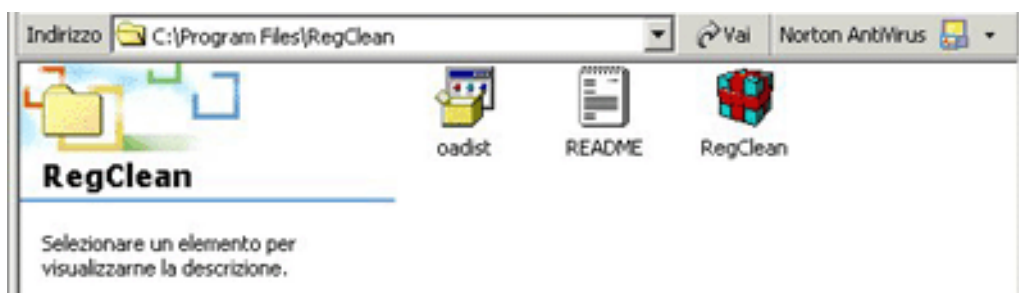
Per avviare il controllo del registro basta fare doppio clic su RegClean. Comparirà questa schermata
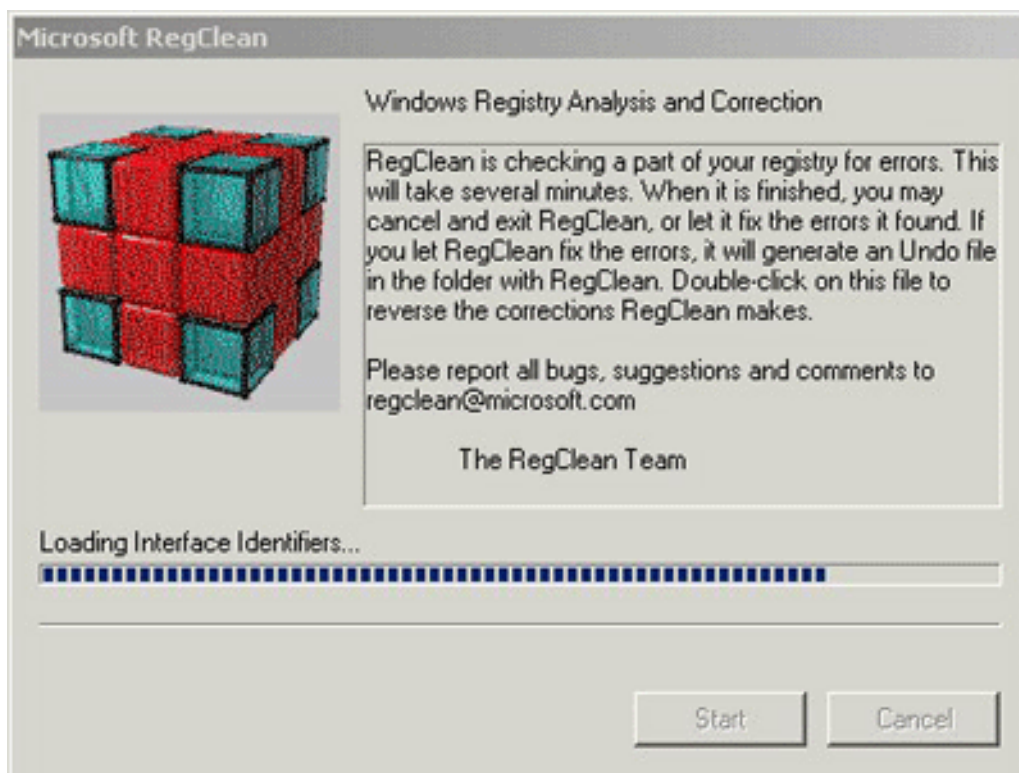
Se al termine della scansione vengono riscontrati degli errori, viene visualizzato il tasto FIX ERRORS, che consente la correzione automatica del registro.
Il programma salva automaticamente, nella cartella da cui è stato lanciato, una copia del registro che può essere utilizzata per recuperare le modifiche apportate. La procedura di recupero è molto semplice: basta un doppio click sul file.

Terza esercitazione: fare una ricerca nel registro di sistema

Quarta esercitazione: tool di ottimizzazione

Quarta esercitazione: tool di ottimizzazione

Torna alla prima pagina